Factors associated with Contraceptive Use in a rural area in the Western Cape, South Africa

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I dedicate this to my family who have been with me throughout this process

DECLARATION

The work presented in this report represents analyses of data collected as part of a larger FAS collaborative study entitled: *COMPREHENSIVE FETAL ALCOHOL SYNDROME PREVENTION PROGRAMME IN THE WESTERN CAPE AND GAUTENG: INDIVIDUAL LEVEL INTERVENTIONS*. Under the supervision of Professor Leslie London and Associate Professor Neo Morejele, the role of the author was restricted to the data analyses of the specified conditions and the documentation of findings, presented as Parts of this dissertation. Therefore, the analyses presented in this dissertation are the original work of the author and have not been submitted for other degree purposes, or publication before. Where the work of others has been used (whether it has been quoted verbatim or paraphrased or referred to) it has been attributed and acknowledged using the Vancouver referencing convention.

Signature : Signed by candidate

Date : 25 April 2012

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STRUCTURE OF THE DISSERTATION

An abstract of the study is first presented. Thereafter there are 3 parts to the dissertation.

Part A is the protocol that outlines the justification for the study, the methods and analyses as well as the ethical implications.

Part B presents the findings of the literature review that was conducted.

Part C concludes the dissertation in the format of a submission to the South African Medical Journal. The format of the journal instructions require that Vancouver referencing be used. To maintain consistency between the Parts, the Vancouver referencing convention – and not Harvard - has been used. The key results of logistic regression analyses are presented for the outcomes of Effective Contraception.

References and appendices are at the end of the dissertation.

Part D includes the appended documents

Appendix A includes the Questionnaire

Appendix B is the Ethics Approval

Appendix C Rosenberg Self-Esteem Scale

Appendix D "Instructions to authors" as provided by the *South African Medical Journal*

ABSTRACT

BACKGROUND: Safe and effective contraceptive use can improve women's reproductive health. Although the contraceptive prevalence rate in South Africa is comparable to rates globally, the distribution is inequitable and marginalises poor and rural women. This study aimed at identifying factors associated with contraceptive uses in a rural area in South Africa.

METHOD: Cross-sectional survey data based on face-to-face interviews with female participants between 18 to 44 years were collected for a primary FAS prevention study in rural and urban South Africa. This study examined data for rural women only. The outcome variable was Effective Contraceptive use (ECC) which included use of oral contraceptives, condoms or injectables, or having been sterilised. Independent variables included socio-demographic factors, substance use, psychosocial factors, community factors, childbearing characteristics and partner characteristics

RESULTS: Women were more likely to use ECC if they reported high self-esteem (compared to low or moderate self-esteem PRR=1.53; 95% CI: 0.99 – 2.39); if they strongly or moderately agreed that their culture entitled men to children compared to those who disagreed (PRR=1.55; 95% CI: 0.95 – 2.52); and if they had one child or more compared to no children (PRR=2.51; 95% CI: 1.64 – 3.84).

CONCLUSION: To promote contraceptive use in in similar rural populations, family planning programmes could focus on increasing men's approval of contraception, improving partner communication around family planning and bolstering women's confidence in their reproductive decision-making, particularly their self-esteem. There should be greater focus on nulliparous women and women between 18 and 24 years old who have the lowest Contraceptive prevalence rate (CPR).

PARTS AND SUBHEADINGS

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LIST OF ACRONYMS

AUDIT – Alcohol Use Identification Disorders Identification Test

CPR – Contraceptive Prevalence Rate

CYP – Couple Year Protection Rate

ECC – Effective Contraception use

FAS – Foetal Alcohol Syndrome

FASD – Foetal Alcohol Spectrum Disorder

IUCD – Intra Uterine Contraceptive Device

MDG – Millennium Development Goal

MMR – Maternal Mortality Ratio

SADHS – South African Demographic and Health Survey

STI – Sexually Transmitted Infection

TFR – Total Fertility Rate

Part A: PROTOCOL

I. INTRODUCTION

1. Problem

In women of reproductive age (15-49 years), complications during pregnancy and childbirth are a leading cause of death, disease and disability in developing countries[1,2]. Contraception is the prevention of pregnancy through temporary or permanent means[3]. Safe and effective contraceptive use has the potential to improve women's reproductive health as well as the lives of her children. Contraception use can prevent one in every three maternal deaths by giving women the opportunity to delay motherhood, space births, avoid unintended pregnancies and abortions, and stop childbearing when they have reached their desired family size[4]. Millennium Development Goal (MDG) 5, which focuses on maternal health, aims to decrease the Maternal Mortality Ratio (MMR) by 75% in 2015 from the levels in 1990[5]. When comparing maternal mortality in South Africa, with other middle-income countries with similar levels of economic development, the MMR is elevated and poor women are more affected than their rich counterparts[1]. Lastly, contraceptive use provides women the freedom to determine their own reproductive choices and subsequently gives them more control over their reproductive lives through promoting gender equity and empowering women and families.

2. Contraceptive Use

The contraceptive prevalence rate (CPR) is the percentage of sexually active[*] women aged 15-49 years who are using a modern contraceptive method and increased modestly in South Africa from 61.2% in 1998 to 64.6% in 2003[6,7]. The 2003 South African Demographic and Health Survey (SADHS) is the most recent data available for South Africa, because the planned 2008 SADHS did not take place and the 2003 data are considered by the WHO as the most recent data for South Africa[8]. These rates are comparable

[*] Women who have had sex in the past 4 weeks [7]

to the global CPR of 63% with the more developed countries having a CPR of 72% and the less developed ones 62%[9]. Sub-Saharan Africa has a CPR of only 22%, but all other regions of the developing world show higher CPR's - namely 61% in Northern Africa (excluding Sudan), 66 % in Asia, and 73 % Latin America and the Caribbean. The global CPR's refer to sexually active women who are married or in a union. In South Africa marital rates are low and therefore the "sexually active" CPR is used for comparison.

3. Predictors of Contraceptive Use

    a. Age and race

The 2003 SADHS results showed a steady decrease in CPR with increasing age namely 68.7 in young women 15 -19 years, 68.2% in the group 20-24 years, 65.8% in the group 25-29 years, 64.1% in the group 30-34 years and 64.4% in the group 35-39 years[7]. The next two age groups namely 40-44years and 45-49 years had lower CPR's of 63.1% and 57.2% respectively[7].

A systematic review looking at limits to modern contraceptive use among 13 to 16 year old women in developing countries showed that they did not use contraceptives because of a lack of knowledge, obstacles to access, concerns over side effects and a fear of future infertility[10]. The majority of the women reported receiving little contraceptive education which re-inforced their perceptions. Other global studies contrastingly show older age associated with an increase in contraceptive use in rural Bangladesh[11] and Ghana[26] – namely, that young women did not use contraception. This is different to the SADHS findings.

Another study by Wood and Jewkes involving in - depth interviews with 35 girls aged between 14 and 20 years, as well as nursing staff in Limpopo province, highlighted nurses' attitudes as a major barrier to teenagers obtaining contraception[12]. The study reported that nurses felt teenagers should not be sexually active and subsequently nurses were viewed by teenagers as judgemental and unhelpful.

Racial differences in contraceptive use were seen in the SADHS 2003 survey. White women had an 80.9% contraceptive prevalence, 75.2% for Indian / Asian women, 69.9% for Coloured women and only 62.2% for black African women[7].According to Swartz, black Africans account for 77% of the population, 61% exist in poverty with the lowest contraceptive prevalence[13]. In South Africa the Total Fertility Rate (TFR) was 2.4 births per woman in 2009[14]. The TFR varied along racial lines with the lowest rate of 1.9 in white women, 2.5 in coloured women and the highest of 3.1 in black African women in 1998[6]. In the 2003 SADHS, the white population TFR was not reported due to too few reported birth data, while the TFR for coloured women was 2.3. The TFR for black African women decreased notably to 2.1[7]. Also in 1998, amongst rural women the TFR was 3.9 and urban women had a TFR of only 2.3[6].The 2003 SADHS reported similar rural and urban TFR's of 2.2 and 2.1 respectively[7].

b. Knowledge about contraception

Discrepancies between the percentage of knowledge and CPR illustrate a disjuncture between knowledge and practice. An example of this is that 96.8%% of women and 99.1% of men between the ages of 15-49 years who were sexually active in the last 4 weeks knew about different contraceptive methods[7] , however only 64.6% of the women use contraception. Also the proportion of women who had knowledge about the fertility period in their cycle was very low (12%) and there had not been any improvements in this regard since the previous 1998 survey[6,7].[†] The above suggests that knowledge has not been translated into contraceptive use. A 1998 South African study examining the compliance, use behaviour and knowledge of method of women using injectable and oral contraceptives in two clinic sites in the Johannesburg area, showed that 31.2% of injectable users had been late for their next injection at least once over a 24 month period[15]. Over 38.5% of women had not been informed by the

[†] The SADHS did not specify if the women were all women, only the sexually active ones or even if the women were on contraception

providers about menstrual disturbances while the majority of oral contraceptive users lacked information on how to use their method correctly. Almost all the women wanted more information on the method of contraception they were using as well as others[15].

Further, two studies looking at adolescents or youth and their knowledge of contraception showed that in terms of reproductive function[‡], young people's knowledge is generally poor and there is notable confusion and misperceptions regarding contraception[16,17]. The SADHS reported 'knowledge about contraception' as high in both men and women; however, it is not stratified according to age.

c. Women's education, employment status and socioeconomic status

Only 7% of South African women aged 15 to 49 years have had no formal education at all with almost 25% having completed matriculation or higher[35]. Education showed the strongest and most consistent association with contraceptive prevalence of all the background characteristics in the 1998 SADHS.[7] This association was also seen in the 2003 SADHS. Although there was a narrowing of the gap in the association between education level and contraceptive prevalence between 1998 and 2003, the prevalence among women with post-matric qualifications is still roughly twice as high as those with no education. According to the SADHS 2003, women with no education (under grade 1) had a CPR of only 38% which went up from 35.1% in 1998.[7]

A decrease in TFR is associated with higher levels of education. The 1998 SADHS reported that women between the ages of 15 to 44 years with no education (under grade 1) had a TFR of 4.5, while women with a post matric qualification had a TFR of 1.9[6] The 2003 SADHS reported a decreasing association between education and TFR, with the women with no education having a TFR of 2.4 and those with a post matric qualification as 1.8[7]. Similar associations were seen with increasing education and increasing

[‡]How the female reproductive system works.

contraceptive use in Ghana[26], Pakistan[18],[19] and Iran. In Iran, illiterate women were 3 times less likely to use contraception than those who had primary level education [OR: 2.98, 95 % CI p = 0.0003][20]. This OR declined to 1.3 in women who had a primary level education compared to women who were university educated [OR: 1.43, 95% CI p =0.01]. Lastly, education has been shown to be powerful in decision making about contraception with a partner[21].

d. Cultural values, beliefs and communication with partner

Male domination and pressures on women to prove their fertility are common issues in South Africa and especially in the rural areas with men being the decision makers[7,22,**Error! Bookmark not defined.**].These significantly impact on decision-making regarding sexual and reproductive matters, such as the ideal number of children, when to have children, and contraceptive use[3,23].The SADHS found that the majority of both sexes felt that women should be allowed to use contraception while many women believed that men would disapprove of any contraceptive usage[7]. A study in Zambia revealed that only 20% of men and 70% of women who they surveyed approved of contraceptive use[24]. The same study found possible reasons for this being the perception that contraception encourages infidelity, causes men to lose control of their wives and will reduce the number of children they desire[24]. In a Bangladesh study, improved communication about contraception use in married couples between husband and wife resulted in high contraceptive use[25]. The Ghanaian study mentioned above looking at factors affecting contraception use found that discussion with a male partner (once or twice ever) was associated with an almost doubled [OR: 1.9, p = 0.000] likelihood of contraception use and discussion more often than twice ever was more strongly associated [OR: 3.4, p=0.00] with contraceptive use[26].

e. Health service barriers

Ease of access to contraception services is fundamental to uptake. The majority of South African women obtain contraceptives from the public sector[6,7]. This sector experienced a reduction of funds[27] for family

planning, as a result of contraception provision being displaced due to the rising costs of HIV/AIDS and STI needs in 2005[28]. Women also travel long distances to health care facilities, wait in long queues[29], experience services with shorter opening hours and poorer quality of care. Confidentiality and a lack of privacy[30] are also compromised and nurses are seen as unapproachable and judgemental of adolescent women who attend family planning services[31].

4. Justification for further research

Although South Africa reached its 1998 target of 65% CPR in 2003, geographic and demographic groups remain marginalised. In particular, rural areas and young women with lower education have lower CPR's. Moreover, the SADHS 2003 showed a 10% decline in the contraceptive prevalence rate in the Western Cape alone from the 1998 SADHS of 73.7% to 63.4% in the 2003 SADHS[6]. This requires further exploration to ascertain if the rural areas in the Western Cape are responsible for that decline. Globally, it is suggested that rural rates are lower, and in the SADHS, the rural rates have risen but are still lower than urban rates. Hence, it is important to look at rural contraceptive use and its predictors. Also, South African maternal mortality rates have increased as have rates of teenage pregnancies and abortions. All of these are outcomes of unwanted pregnancies, which could be attributable to inadequate contraceptive prevalence.

In 2006, a project to develop a comprehensive foetal alcohol syndrome prevention model was started in South Africa[32]. The project included a baseline household survey in an urban and rural area of South Africa to determine the prevalence and predictors of being at risk of an alcohol-exposed pregnancy (AEP) among women of child-bearing age in an urban and rural location in South Africa. Data collected for this study included socio-demographic factors, history of the last pregnancy, substance use variables and partner characteristics, as well as contraceptive use, amongst others. Reports from this study have included an *Analysis of associations with risky alcohol use*[33] and of *Predictors of an Alcohol Exposed*

pregnancy[32]. Due to the availability of these data and absence of research on the factors influencing contraceptive use in rural areas of South Africa, this study concept was developed.

This report attempts to direct attention to the rural women who are an underrepresented group in research[34]. The purpose with this study is to help address both the neglect of rural health research and the scarcity of statistically analysed data on women's contraceptive practices and the factors that influence them. With the findings, those working in public health will be able to more effectively plan and deliver services to this population.

Research Aim

To investigate the factors associated with contraceptive use in a rural Western Cape population

Objectives

- To describe
    - the prevalence of effective contraceptive use
    - the types of contraceptives used
- To determine socio-demographic, substance use, psychosocial, childbearing experiences and partner characteristics associated with women's contraceptive use in rural Western Cape

II. METHODS

1. Study area

West Coast district municipality, Western Cape

The original study used both an urban and a rural site, but for purposes of this study, the analysis is restricted to the rural site only. The urban and rural sites differ substantially and there are too many

differences between the two sites to attribute these differences merely to 'rurality.' For example, the Western Cape site is a commercial farming site in which the majority language is Afrikaans, which is very different to other rural sites in South Africa. For that reason, it was decided to choose only the rural site for analysis. The rural study site was 3 municipalities in the West Coast district, namely Bergrivier, Swartland and Cedarberg and is made up of multiple farm holdings (Figure 1). The West Coast covers a total area of 15,311 km2 with a total population of 160,000. It borders the Atlantic Ocean on the West and agricultural land on the east[35]. In 2001, the proportion of rural house-holds in West Coast was reported as 39%[32]. The racial makeup of the municipality is Black African 5.0%, Coloured 75.6%, Indian/Asian 0.1%, and White19.2%[35].Only 18% of the population completed grade 12 and 6% had tertiary education. 31% of the population had secondary education but did not complete grade12, 11% completed primary education, 23% had some primary education and 10% of population had no formal schooling[35]. Agriculture and fishing are the major economic contributors in the region and are responsible for most of the employment in the West Coast[32]. The majority of workers (65%) were in non-skilled occupations. Excessive alcohol use among the farm workers has its origin in the now abolished *dop* system which paid the farm workers in low – grade wine[32].

Rural Western Cape differs from other rural areas on South Africa. Rural Western Cape has commercial farming with very closed community circles and paternalistic employment relations. The population predominantly consists of Afrikaans-speaking Coloured workers; with high rates of alcohol abuse; teenage pregnancies and alcohol-exposed pregnancies[32]. The *Surplus Project* compared the average monthly household income (R1 440) with the average expenditure per month (R1 520) in 2008 revealing that households are struggling to survive[36]. This result means a high proportion of income (>60%) is devoted to food expenditures and a significant proportion (20%) of households indicate high indebtedness. Lastly, food insecurity and hunger is experienced by 20% of the households[36]. In summary, multiple factors, namely food and energy price hikes, limited livelihood strategies, low

incomes and high degrees of indebtedness, all serve to indicate deeply entrenched vulnerability to poverty traps and food insecurity for rural households on the Cape West Coast[36].

Due to the clear differences in socio-demographics, access to health services and lifestyle choices between rural and urban areas, the predictors of contraceptive use are likely to be different.

Figure 1: Map of District Municipalities of West Coast District

2. Study Design

The primary study was a cross–sectional survey conducted among women of reproductive age (18-44) in Gauteng and Western Cape, South Africa in 2006. As explained above, for the purposes of this study – only the Western Cape data was used.

3. Study Population

Inclusion criteria were as follows: Women had to be of reproductive age (18-44yrs), were fertile and be resident in the 3 chosen municipalities in the West Coast District.

4. Population Sampling and Size

Stratified cluster random sampling was used with the intention of recruiting 650 women as participants. From a total set of 1450 farms across the 3 municipalities, 150 farms were randomly selected within the boundaries of the selected areas. Oversampling was done to account for un-contactable, ineligible, and non-functional farms. All eligible women who met the inclusion criteria in every household within each of the 58 participating farms were asked to participate in the study. All eligible women per farm ended up being a part of the study because of the small average number of households per farm (approximately 7) and the large distances between farms.

5. Measurement

5.1 Instrument: Questionnaire

A structured questionnaire was used. It included items making up various scales for assessing the dependent variable (Effective Contraception use) and independent variables. (Outlined below in summary and in more detail in Appendix A)

5.2 Survey Administration

Fieldworkers were trained before visiting the selected households. They conducted face-to-face interviews with eligible woman in her language of preference. Only those women who gave informed consent were interviewed. The interviews were conducted at the participants' homes and took between 15 and 90 min.

III. ANALYSIS FOR THIS DISSERTATION

1. DATA ANALYSIS

Data was received in STATA (R) 10.0. The data had already undergone cleaning. Variables not relevant to this study will be removed from the dataset prior to data exploration.

Dependent / Outcome Variable

The outcome variable is Effective Contraceptive use (CC) which includes taking the pill, use of condoms, use of injectables or having been sterilised which was scored as yes (1). A (0) will be allocated if the participant has not used any contraception or will be using ineffective contraception[§]. The outcome effective contraception is therefore binary.

Independent / Exposure Variables

The independent variables were mostly measured in binary scales and comprised 5 domains:

1. socio-demographic factors;
    a) Age will be categorised into three age groups: 18–24 years, 25–34 years and 35–44 years, respectively.
    b) Educational status will be divided into primary schooling or lower, versus above primary education.
    c) Parity will be divided into more than one child (1) versus one or no children (0)
    d) Marital status will be categorised into married (legally and traditionally), cohabiting, and not married.

[§] Ineffective Contraception is defined according to the type of contraceptive method reported by the participant namely calendar / rhythm, withdrawal, traditional / herbs/ remedies or none

e) Socially classified racial group which is referred to as 'race' and which in South Africa is based on the apartheid construct which classified people as either 'black/African', 'coloured', ''white'', and ''Asian/Indian''

f) Unemployment will be categorised as not currently being in any form of employment.

g) Participants who reported possession of five or more out of eight household assets and commodities (electricity, a radio, a television, a telephone, a fridge, a computer, a washing machine and a cellular telephone) have a high socio-economic status (SES) score (1), and those reporting less than five will be given a low SES score (0)

2. substance use;

a) A participant who smoked in the last 30 days will be classified as current smokers.

b) Participants who reported ever using cannabis will be categorised as cannabis users

c) Alcohol use: this was measured using the 10-item Alcohol Use Disorders Identification Test (AUDIT)[37]. A score of 8 or more will classify someone as having harmful alcohol consumption and be used to categorise respondents into a binary score of 8 or more (1) and less than 8 (0)

3. psycho-social factors (These variables are self-esteem, religious involvement, male entitlement and perceptions about cultural prescriptions on childbearing);

a) Using Rosenberg's (1965) 10-item self-esteem scale, the answers will be summed and split across the 75th percentile to denote high versus low self-esteem. (Refer to Appendix C)

b) Questions assessing the participants' religiosity and level of religious practice were assessed on a 6-item religious orientation scale.[38] Scores were summed, and divided into high and low religiosity split at the 75th percentile.

c) Using a single-item question answered on a Likert scale, participants' extent of agreement that their culture entitles males to have as many children as they wish to, a score of (1) was allocated to those who strongly or moderately agreed. All others were allocated a score of (0) on this measure.

d) A single-item question was used to assess participants' belief that their culture prescribed a childbearing obligation to women. A score of (1) to those who agreed, and a score of (0) to those who did not agree

4. Childbearing experiences

   a) Previous pregnancy was divided into more than one (1) versus one or none (0)
   b) Previous unwanted pregnancy. The participants were asked : *At the time you became pregnant with your last child, did you want to become pregnant then, did you want to wait until later, or did you want no (more) children at all?* Dummy variables were created for each option.
   c) Age at first sex. This will be dichotomised into less than 18 years (0) and greater than or equal to 18 years (1).

5. Partner characteristics.

a) Those participants who had a partner aged 30 years or older were given a score of (1). Those with a partner younger than 30 years score of (0).

b) The partners' who has education to Grade 8 or lower will be assigned a score of (0) and those with a partner educated beyond Grade 8 will be assigned (1)

2. STATISTICAL ANALAYSIS

Descriptive data analysis

STATA 10 (R) will be used for all analyses. All the variables (both independent and dependent) are categorical. For the descriptive analysis of these variables, frequency distributions and percentages will be done. Pearson's chi square test will be conducted on each categorical variable (age, educational status, parity, marital status, unemployment, household assets, smoking, AUDIT, self-esteem, religiosity, male entitlement, cultural perceptions, partner age, partner educational status, previous pregnancy, previous unwanted pregnancy and age at first sex in relationship to the outcome variable (contraceptive use). Contraceptive prevalence was estimated using the total sample of women as the denominator followed by a sub-sample of only sexually active women being used as the denominator. Sexually active women were those women who reported having in the past 4 weeks.

Multivariate Analysis

A logistic regression model will be conducted with the independent variables or exposures (socio-demographic factors, substance use, psycho-social factors, childbearing characteristics and partner characteristics) and the dependent or outcome variable (Effective Contraceptive use). Each independent variable will be added individually to a baseline empty model. At each step, once variables are added one at a time, they will be compared based on improvement in the AIC models. Based on Akaikes Information Criterion (AIC) values, the best model will be selected.

Standardised residuals, linear predictor (xb), Pregibon leverage (hat matrix) and deviance residuals will be predicted for the model. The linear predictability of the model will be determined by creating a scatter plot of residuals versus xb (linear predictors). Influence will be determined using the predicted Pregibon leverage in STATA(R), and the observations with high leverage value will be considered to be

influential. Observations with a value more than 2*p/n will be considered to be influential, where p equals the number of observation and the number of covariate patterns.

IV. ETHICS & COMMUNICATION

1. Ethics

Ethics approval for the primary study was granted by the Faculty of Health Sciences Research Ethics Committee of the University of Cape Town (Ethics approval no. 381/2005. This was renewed once in 2007 and again in 2012 for this study (026/2012.) (Appendix B)

2. Feed-back and Dissemination of this analysis

The findings will be submitted as part of the Master of Medicine (MMed): Public Health dissertation at the University of Cape Town. It will also be submitted in the appropriate format to a peer-reviewed journal. The findings will also be communicated to any special interest reference groups affiliated to the Western Cape Provincial Department of Health as well as the Maternal, Child and Women's Health Directorate within the Department of Health of the Provincial Government of the Western Cape.

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Part B: Literature Review

1. Search Strategy

The literature search was conducted using the Pub Med, Medline, and Cochrane Library databases as well as the Public Library of Science (PLoS). Terms that were used to search for were 'contraception', 'birth control', 'injectables', 'depo-provera', 'progesterone', 'family planning', 'low income', 'South Africa', 'Africa', 'factors influencing contraception', 'barriers for contraception', 'predictors of contraception', 'rural', 'poor' and 'low socioeconomic status.' There was an initial focus on studies that were conducted locally. However, due to the limited number of studies available, studies from outside South Africa was also included in the review if they were conducted in settings of similar socio-economic status to South Africa. All the articles were taken from credible, English medium, peer-reviewed journals. They were critically appraised according to the international standardised public health guidelines[1] and so the articles used were of a good quality and valid. Although considerable research has addressed contraception use, the research in rural areas, in particular, is lacking.

OBJECTIVES OF THE LITERATURE REVIEW

1. To provide background of contraceptive use, its prevalence and the types of contraception available
2. To review the relationship with contraception and consequences of unplanned pregnancies
3. To review the predictors of contraceptive use

INTRODUCTION

In women of reproductive age (15-49 years), complications during pregnancy and childbirth are a leading cause of death, disease and disability in developing countries[2,3]. Contraception is the prevention of pregnancy through temporary or permanent means[4]. Safe and effective contraceptive use has the potential to improve women's reproductive health as well as the lives of their children. According to the World Health Organisation (WHO), contraception has the potential to reduce 32% of maternal deaths and 10% of newborn, infant and child deaths[3]. Contraception use can prevent one in every three maternal deaths by giving women the opportunity to delay motherhood, space births, avoid unintended pregnancies and abortions, and stop childbearing when they have reached their desired family size[5]. Millennium Development Goal (MDG) 5, which focuses on maternal health, aims to decrease the Maternal Mortality Ratio (MMR) by 75% in 2015 from the levels in 1990[2]. When comparing maternal mortality in South Africa, with other middle-income countries with similar levels of economic development, the MMR is elevated and poor women are more affected than their rich counterparts[2]. The MMR in South Africa has been increasing rather than decreasing since 1990 and was 425% higher by 2008 than what it should have been if South Africa had been on track to achieve MDG 5[2]. Lastly, contraceptive use provides women the freedom to determine their own reproductive choices and subsequently gives them more control over their reproductive lives through promoting gender equity and empowering women and families.

II. REVIEW OF RELEVANT RESEARCH

1. To provide background of contraceptive use and contraceptive prevalence rate

In South Africa, modern hormonal contraceptives are freely available at all public sector clinics. The contraceptive prevalence rate (CPR), which refers to the percentage of all sexually active women aged 15-49 who are using a modern contraceptive method increased modestly from 61.2% in 1998 to in 2003 to 64.6% in 2003[7,8]. The 2003 South African Demographic and Health Survey (SADHS) are the most recent data available for South Africa, because the planned 2008 SADHS did not take place and the 2003 data are considered by the WHO as the most recent data for South Africa[12]. These rates are comparable to the global CPR of 63% with the more developed countries having a CPR of 72% and the less developed ones 62%[8]. Sub-Saharan Africa has a CPR of only 22%, but all other regions of the developing world show higher CPR's namely 61% in Northern Africa (excluding Sudan), 66 % in Asia, and 73 % Latin America and the Caribbean.

One of the key objectives of the National Department of Health's *Goals, Objectives &Indicators for 2001 to 2005* was to increase the CPR to 65% by 2005[6]. This figure taken from the 1998 SADHS survey and had been reached by 2003 according to the 2003 SADHS[7]. However, it is masks differences by province, urban/rural setting, age, education, marital status and race[7]. The urban CPR remained relatively unchanged in 2003 and the rural increased from 52.7% in 1998[8] to 61.8% in 2003[7]. Lower contraceptive prevalence in rural areas has also been reported in other South African studies[9,10,52] . However, a study to investigate the predictors of Alcohol exposed pregnancy in two provinces of South Africa[11] showed no significant difference in contraception use amongst the urban and rural populations. Inter-provincial differences in CPR have also been noted. For example, Kwazulu-Natal and Limpopo have increased their contraceptive rates to 76.8% and 58.6% respectively, however the Western Cape's has declined from

73.7% in 1998[8] to 63.4% in 2003[7]. This 10% decline is a worrying finding and highlights the need for further investigation.

The *Couple Year Protection Rate* is another indicator that calculates the rate at which couples (specifically women) are protected against pregnancy using modern contraceptive methods[12]. In the Western Cape, this indicator has increased from 49.9%% in 2008 to 59.5% in 2009 and decreased slightly to 58.5% in 2010[12].

Studies show that high levels of contraceptive use are associated with a decline in the total fertility rate (TFR)[*13,14]. South Africa's TFR is related to socio-economic divisions along racial and urban-rural lines[15].

Injectables were the common contraceptive in the 2003 SADHS among sexually active women. Combining the two injectable methods (namely 2 and 3 monthly injectables) accounts for 33% of the total CPR.[7] This increased from the 30.1% in the 1998 SADHS. The 2003 SADHS reported using the pill among sexually active women as 12.2%, which was a slight decrease from the 13.2% in the 1998 SADHS. Male condom use in sexually active women has increased substantially from 2.3 % in 1998 to 7.8% in 2003.[7] The increase in male condom use can be seen across all age groups of sexually active women with the highest (18%) in the youngest age group (15-19).[7]

This is double the male condom utilisation rate reported in the 1998 survey and indicates a positive shift towards condom use among adolescents and young women. [7] Despite these high levels of hormonal contraceptive use, consistency of use is poor, with high rates of discontinuation or "breaks in use" as a result of which 'use' of contraceptive may be ineffective. While the injectable hormonal methods continue to dominate the method mix, other long acting reliable methods such as the intrauterine contraceptive device (IUCD) and female and male sterilization are available but less commonly used[7].

[*] average number of children that would be born to a woman over her lifetime if (1) she were to experience the exact current age-specific fertility rates (ASFRs) through her lifetime, and (2) she were to survive from birth through the end of her reproductive life

IUCD use dropped from 1.9 % in sexually active women in 1998 to 0.8% in 2003.[7]Female sterilisation of women currently in union also dropped from 16 % of in 1998 to 14 % in 2003.[7] Traditional methods were only used by 1% of the sexually active women in 1998 and dropped to zero in 2003.[7] Emergency Contraception (ECP)[†] is available over the counter in pharmacies and in the public sector, but its utilisation in the public sector is 0.5% of sexually active women having ever used this method in 2003[7].

i. HIV

The huge burden placed on the South African health system by the HIV epidemic has not only overshadowed family planning services, but also requires attention to be paid to the contraceptive needs of HIV infected people and those at risk of infection[16]. The majority of South Africans who are HIV infected are of reproductive age. Therefore, conception and reproductive options for this group are important issues for health care delivery and research[17]. As a result, the need for integration of family planning and HIV services in South Africa is widely recognised[2,4]. In particular, maximising opportunities to provide contraception services at routine HIV visits (as opposed to a separate visit or referral) for women who are HIV positive and on treatment is called for, as is counselling about HIV and appropriate methods within family planning services[16,18]. The country's high HIV prevalence has resulted in an increased need for emphasis on dual protection from unwanted pregnancy and sexually transmitted infections (STIs)[19]. However, evidence shows that in some facilities condom promotion is aimed at STI prevention, rather than a method of contraception[19]. Although condom promotion by service providers is evident, the specifics of condom use, such as negotiation and gaining partner cooperation, and correct and consistent use are seldom touched on by providers[19]. In a study by Cooper et al[20] ascertaining the reproductive intentions of men and women who were HIV infected, it found that they do not openly engage about their fertility desires and intentions. There were differing views with some participants

[††] Emergency contraception is a method to prevent pregnancy in women who have had unprotected sex or when birth control methods have failed. Emergency contraception is taken after unprotected sex to prevent pregnancy from occurring. It may also be called the "morning after" pill.

not wanting children while others did[20]. Participants also felt that that the quality of contraceptive counselling provided was variable with little discussion of dual protection and emergency contraception. Even health care providers and policymakers who formed part of the interviewees were unaware of global guidelines and highlighted the need for sufficient training on contraception, dual method counselling and emergency contraception[20].

ii. Unmet need[‡] and Unplanned Pregnancy outcomes

More than 100 million women in developing countries or approximately 17% of all married women do not desire a pregnancy but are not using any contraception[21]. These women are referred to as having an *unmet need* for family planning. Ideally, rising CPR should reduce unmet need[22]. However, in some countries *unmet need* still remains high or is progressively increasing. Unmet need globally in 2009 was 11.2% with the more developed countries close to 0% and the less developed 11.4%. Africa's unmet need was 22.7% with Southern Africa's being 15.6%. This is also not in keeping with South Africa's high CPR[23].

According to Theron, there is also an inverse relationship between contraceptive use and unplanned pregnancies[24] namely the higher the CPR in an area, the lower the number of unplanned pregnancies should be[25]. Unmet need and CPR are also inversely related and therefore high levels of unmet need can result in high unplanned pregnancies[22].

Unplanned pregnancies are associated with an increased risk of morbidity for both the woman and her unborn child due to unhealthy behaviours exhibited during pregnancy[26]. There are an estimated 80 million women globally who have unplanned pregnancies annually; 45 million of these end in abortions and more than half a million women die from complications associated with pregnancy, childbirth and

[‡] A woman has an unmet need for contraception if she is married, in a consensual union, or never-married and sexually active; is able to become pregnant; does not want to have a child in the next two years or wants to stop childbearing; and is not using any method of contraception, either modern or traditional[22]. (Guttmacher, 2007)

during the postpartum period[27,25]. In developing countries, a quarter of pregnancies are either unwanted or mistimed (wanted later)[28]. Despite widespread availability of family planning services and high contraceptive uptake, there is an estimated 53% of South African pregnancies either unplanned (36%) or unwanted (17%)[29]. In South Africa, the number of pregnancy terminations is on a steady increase with 529 410 abortions since the Choice of Termination of pregnancy law in 1997 was passed[30].

Sub-Saharan Africa produced a total of 7.9 million teenage pregnancies and of these only 53% were planned with the rest ending in 16% miscarriages, 13% abortions and 18% unplanned births[31.] Teenage pregnancy is a growing public health concern in South Africa, with greater than one-third of South African women experiencing their first birth by the age of 19 years7[32]. Most first births occur to unmarried women[33], and it is common for contraceptive use to often only commence after a first birth[34,35,36]. The national Department of Health's *Goals, Objectives &Indicators for 2001 to 2005* provided a target to reduce the proportion of births from girls aged 15 to 19 years from 16.4% to 13% by 2005[6]. The 1998 SADHS reported that by the age of 19 years, 35% of all teenagers have been pregnant or have had a child[7]. According to the SADHS 2003, almost half of all women typically have their first birth before their 21st Birthday.[8] More rural women in this age group had been pregnant than their urban counterparts (20.9% and 12.5% respectively)[7]. (SADHS 1998 page 15 A high proportion of pregnancies among teenage and young adult South African women are characterised as unplanned with the highest levels among unmarried, younger women[37,38]. Unplanned pregnancies, especially in teenagers, have been shown to contribute to an increased risk for poverty as pregnant teenagers often leave school early[38].

In South Africa high-risk drinking by women is a major problem, especially in the Western Cape[39]. This is compounded with increasing levels of unplanned pregnancies and can lead to lifelong consequences for the mother and child[40,41]. A consequence of high alcohol consumption among women is maternal

drinking and alcohol-exposed pregnancies, which can result in Fetal Alcohol Spectrum Disorders (FASD)[42]. FASD describes a continuum of permanent birth defects which includes, but is not limited to foetal alcohol syndrome (FAS)[43]. FAS has reported rates for Grade 1 children of 6.8% to 8.9% in Western Cape high-risk areas[42] which are the highest in the world[40,43]. FAS is the extreme end of a spectrum of Foetal Alcohol Spectrum Disorder (FASD) so the real impacts are greater.

Another unplanned pregnancy outcome is maternal mortality[§]. Improving reproductive health is key to achieving the Millennium Development Goals of improving maternal health, reducing child mortality and poverty reduction. Globally maternal mortality is 260 deaths per 100 000 live births for 2008[23]. In the same year, the more developed countries had a rate of 17 per 100 000 live births while the less developed had a rate of 290 per 100 000 births and Africa had a rate of 590 per 100 000 live births[23]. South Africa had a maternal mortality rate of 410 per 100 000 live births with 43.7% of these deaths due to HIV / AIDS. According to the latest *Saving Mother's Report* there was a 20.1% increase in the number of maternal deaths reported between 2005 to 2007 when compared with the previous triennium (2002-2004) in South Africa[44]. One of the key recommendations was to improve the quality and coverage of reproductive health services specifically contraceptive and termination of pregnancy services[44].Reducing unnecessary maternal morbidity and mortality is therefore dependent on the need to improve contraceptive services.

iii. Reproductive and Sexual Rights in South Africa

The concept of the right to contraceptive choice is an essential component of reproductive and sexual rights. This is particularly important in the South African context where, in the past, Apartheid governed every aspect of South African life through racial segregation and discrimination. Black African South Africans were not given political, social, economic and health rights. More damaging was that the public

[§] deaths of women while pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes

health system was inequitably favourable towards the white minority and characterised by geographical and racial inequalities[45]. Even contraceptive services had not escaped Apartheid's policies with a plan to control the black African population growth[18]. An example of this was the different choices of contraception given to white and black African women[46,47]. White women were given wide choice and most made use of short acting easily reversible contraceptive methods like the pill, while black women were given limited choice of contraception, with emphasis on long acting or permanent options like injectables or sterilisation[46]. The dawn of democracy in South Africa in 1994 ushered in a new human rights based legal framework which sought to address all areas of society, including women's health[18]. The result is that legislation and policies regulating reproductive health are currently amongst the "most progressive and comprehensive in the world"[18].

iv. Predictors of Contraceptive Use

a. Age and race

The 2003 SADHS results showed a steady decrease in CPR with increasing age namely sexually active women had a CPR that ranged between 68.7% in the 15-19 year age group (which was the highest) and 57.2% in the 45-49 year age group (which was the lowest)[8].

A systematic review looking at limits to modern contraceptive use among 13 to 16 year old women in developing countries showed that they did not use contraceptives because of a lack of knowledge, obstacles to access, concerns over side effects and a fear of future infertility[48]. Of the 12 studies in the review, 6 were from Sub-Saharan Africa, with 2 from South Africa. The majority of the women reported receiving little contraceptive education which re-inforced their perceptions. Also, young women believed that family planning services catered for married women and had significant fears of receiving a negative reception from clinic staff[48]. Talking about sex was also seen as too sensitive for young girls. Condoms were also seen as primarily for prevention of HIV and other STI's. Going to obtain

contraception by younger women was also seen as an admission of having sex and was linked to promiscuity, so young women saw obtaining contraception as stigmatising[49]. Other global studies show that older age is associated with an increase in contraceptive use in rural Bangladesh[50] and Ghana[51] namely that young women did not use contraception. This contrasts to the findings of the SADHS that the highest CPR are amongst the youngest women.

Similar findings to the Sub-Saharan review mentioned above were seen in the SADHS studies that found younger women (15 to 19 years) in South Africa experienced their own barriers when accessing family planning services namely concerns over lack of privacy, inconvenient clinic opening times, and discouragement by clinic staff who disapprove of youth being sexually active[7,44]. Another study by Wood and Jewkes involving in depth interviews with 35 girls aged between 14 and 20 years as well as nursing staff in Limpopo province highlighted nurses' attitudes as a major barrier to teenagers obtaining contraception[49]. The study reported that nurses felt teenagers should not be sexually active and subsequently nurses were viewed by teenagers as judgemental and unhelpful.

An Eastern Cape study found women aged 40–49 years relative to those aged 15–34 years were less likely to be using a more permanent contraception method (Risk Ratios: 0.04 to 0.2)[52]. This is in keeping with Wood and Jewkes's study showing that social pressures like needing to prove fertility in a relationship stopped teenage women from using contraception[49].

Racial differences in contraceptive use were seen in the SADHS 2003 survey. White women had an 80.9% contraceptive prevalence, 75.2% for Indian / Asian women, 69.9% for Coloured women and only 62.2% for black African women.[8] According to Swartz, black Africans account for 77% of the population, 61% exist in poverty with the lowest contraceptive prevalence[53]. In South Africa the Total Fertility Rate (TFR) was 2.4 births per woman in 2009[54]. The TFR varied along racial lines with the lowest rate of 1.9 in white women, 2.5 in coloured women and the highest of 3.1 in black African women in 1998.[7] In the

2003 SADHS, the white population TFR was not reported due to too few reported birth data, while the TFR for coloured women was 2.3. The TFR for black African women decreased notably to 2.1[8]. Also in 1998, amongst rural women the TFR was 3.9 and urban women had a TFR of only 2.3[7]. The 2003 SADHS reported similar rural and urban TFR's of 2.2 and 2.1 respectively[8]. TFR also has an association with education. Women with no education had a TFR of 4.5, while women with some university level education had a TFR of 1.9[7]. The 2003 SADHS reported a decreasing association between education and TFR, with the women with no education having a TFR of 2.4 and those with higher than grade 12 education as 1.8[8]. The South African history of racial classification accompanied by gross inequalities in access to education and economic opportunities as well as health services are reflected in contraceptive prevalence as well[7]. It might be a social issue related to poverty rather than one based on race exclusively. In a British study looking at contraceptive prevalence and race / ethnicity amongst sexually active women aged 16–44 years, from all three minority ethnic groups (Indian, Pakistani and black Caribbean) were less likely than white women to use reliable methods of contraception[55]. According to UK parliament, Black and minority ethnic (BME) groups generally have worse health than the overall population, and according to them, evidence suggests that the poorer socio-economic position of BME groups is the main factor driving ethnic health inequalities[56]. Lower contraceptive prevalence rates could be viewed in the same way namely, differences in socioeconomic status explains differences in race.

b. Knowledge about contraception

Discrepancies between the percentage of knowledge and CPR illustrate a disjuncture between knowledge and practice. An example of this is that 96.8%% of women and 99.1% of men between the ages of 15-49 years who were sexually active in the last 4 weeks knew about different contraceptive methods[8], however only 64.6% of those women use contraception. Also the proportion of women who

had knowledge about the fertility period in their cycle was very low (12%) and there had not been any improvements in this regard since the previous 1998 survey[7,8] [**].

The above suggests that knowledge has not been translated into contraceptive use. A 1998 South African study examining the compliance, use behaviour and knowledge of method of women using injectable and oral contraceptives in two clinic sites in the Johannesburg area, showed that 31.2% of injectable users had been late for their next injection at least once over a 24 month period[57]. Over 38.5% of women had not been informed by the providers about menstrual disturbances while the majority of oral contraceptive users lacked information on how to use their method correctly. Almost all the women wanted more information on the method of contraception they were using as well as others[57].

Further two studies looking at adolescents or youth and their knowledge of contraception showed that in terms of reproductive function[††], young people's knowledge is generally poor and there is notable confusion and misperceptions regarding contraception[58,59]. The SADHS reported 'knowledge about contraception' as high in both men and women, however it is not segregated according to age in both the 1998 and 2003 surveys.

A 1998 South African study investigating women using injectable and oral contraceptives in two clinic sites in the Johannesburg area study examined their compliance, use, behaviour and knowledge of contraceptive method[60]. Results showed that 31.2% of injectable users had been late for their next injection at least once over a 24 month period[60]. Over 38.5% of women had not been informed by the providers about menstrual disturbances while the majority of oral contraceptive users lacked information on how to use their method correctly. Almost all the women wanted more information on the method of contraception they were using as well as others[20].

[**] The SADHS report did not specify if this statistic was based on all women or only sexually active women and did not identify if the women were on contraception

[††] How the female reproductive system works.

c. Women's education, employment status and socioeconomic status

Only 7% of South African women aged 15 to 49 years have had no formal education at all with almost 25% having completed matriculation or higher[61]. Education showed the strongest and most consistent association with contraceptive prevalence of all the background characteristics in the 1998 and 2003 surveys. Although there was a narrowing of the gap between 1998 and 2003, the prevalence among women with post-matric qualifications is still roughly twice as high as those with no education. According to the SADHS 2003, women with no education (under grade 1) had a CPR of only 38% which went up from 35% in 1998. Amongst those with the higher than grade 10 (1998) and higher than grade 12 (2003), the CPR was 78.1% [7] and 74.8%[8] respectively.

A decrease in TFR is associated with higher levels of education. Along the same lines, women between the ages of 15 to 44 years in the 2003 SADHS with no education (under grade 1) had a TFR of 4.5, while women with some university level education had a TFR of 1.9[7]. The 2003 SADHS reported a decreasing association between education and TFR, with the women with no education having a TFR of 2.4 and those with higher than grade 12 education as 1.8[8]. A Nigerian study of secondary students looking at reproductive health knowledge, sexual partners and contraceptive use and motives for premarital sex, showed that the more educated a women is, the greater the chance of her using contraceptives[62]. Similar associations were seen with increasing education and increasing contraceptive use in Ghana[51], Pakistan[63,64] and Iran. In Iran, illiterate women were 3 times less likely to use contraception that those who had primary level education [OR: 2.98, 95 % CI p = 0.0003][65]. This OR declined to 1.3 in women who had a primary level education to women who were university educated [OR: 1.43, 95% CI p =0.01]. Lastly, education has been shown to be powerful in decision making about contraception with a partner[66].

In terms of the association between education and choice of specific contraceptive, both surveys showed a progressive increase in using the pill as education level increased. In the 1998 survey, 3.7% of women with no education and 25.7% of women with post matric qualification use the pill. [7] The 2003 SADHS study showed that 24.3% of women with post matric qualification used the pill while only 4.7% of the women with no education (less than grade 1) did[7]. In contrast, the 1998 survey showed similar numbers between education levels of using injectables namely 20.1% in women with no education and 23.9% in women with a post matric qualification[7].The group of women in the std 6 to std 9 education group had the highest injectable usage of 34.2%. Combining both types of injectables in the 2003 SADHS showed that 19.1% of women with no education and 22.4% of women with post matric qualification used injectables[7]. Stephenson et al in their Eastern Cape study found women in communities in which females had higher levels of education (RR: 2.8, 95% Confidence Interval) and higher mean ages at first sexual intercourse (RR: 1.26, 95% Confidence interval 1.12–1.4) (indicative of higher levels of female autonomy) had a greater likelihood of using the pill instead of the injection[52]. This association is also seen in Zimbabwe and Botswana[67]. The same study also showed that women living in wealthier areas with higher levels of female autonomy (indicated by control over earnings) were more likely to be using either the pill or a more permanent method of contraception than the injection[52].

Another socioeconomic indicator is employment. According Macphail's study investigating young women and their contraceptive use, it was found that students who were employed were more likely to use contraception[68]. Sexually active non-adolescent women who were employed in Indonesia[69] and India[70] were also more likely to use contraception.

Improving women's educational and economic opportunities has the potential to provide control over their sexual and reproductive matters.

d. Cultural values, beliefs and communication with partner

Male domination and pressures on women to prove their fertility are common issues in South Africa and especially in the rural areas with men being the decision makers[52,71]. These significantly impact on decision-making regarding sexual and reproductive matters, such as the ideal number of children, when to have children, and contraceptive use[450,]. The SADHS found that the majority of both sexes felt that women should be allowed to use contraception while many women believed that men would disapprove of any contraceptive usage[7]. A study in Zambia revealed that only 20% of men and 70% of women who they surveyed approved of contraceptive use[72]. The same study found possible reasons for this being the perception that contraception encourages infidelity, causes men to lose control of their wives and will reduce the number of children they desire[72]. In a Bangladesh study, improved communication about contraception use in married couples between husband and wife resulted in high contraceptive use[72]. The Ghanaian study mentioned above looking at factors affecting contraception use found that discussion with a male partner (once or twice ever) was associated with an almost doubled [OR: 1.9, p = 0.000] likelihood of contraception use and discussion more often than twice ever was more strongly associated [OR: 3.4, p=0.00] with contraceptive use[73].

e. Health service barriers

Ease of access to contraception services is fundamental to uptake. The majority of South African women obtain contraceptives from the public sector[7,8]. This sector experienced a reduction of funds[44] for family planning, as a result of contraception provision being displaced due to the rising costs of HIV/AIDS and STI needs in 2005[74]. Women also travel long distances to health care facilities, wait in long queues[75]. experience services with shorter opening hours and poorer quality of care. Confidentiality and a lack of privacy[4] are also compromised and nurses are seen as unapproachable[76] and judgemental of adolescent women who attend family planning services[77]. According to the Saving Mothers report, assessors

thought 38.4% of the deaths amongst pregnant women were clearly avoidable within the health care system[44]. Together with poor transport facilities, lack of health care facilities and lack of appropriately trained staff were the major administrative problems responsible for the increase in maternal mortality[44].

CONCLUSION

Although South Africa has a high CPR when compared to other countries in the region and continent, there are still demographic and geographic inequities in usage. Women in rural areas and those who have a low education do not use contraception as much as their urban and better educated counterparts do. Age is a notable predictor because younger women reported higher levels of contraceptive use when compared to older women. Although all races have shown a steady increase in CPR from 1998 to 2003, black African women have the lowest CPR when compared to the other races with this disparity being possibly related to socioeconomic status rather than race itself. In terms of knowledge, although the SADHS reported high levels of knowledge, younger women required more information. Knowledge of contraception amongst South African women was more than 90%, yet the CPR was only 64.6%. Having education, as well as higher levels of education were related to both contraceptive use and to choice of contraception. In SA and globally, the better educated a woman is, the greater the likelihood that she will use contraception. More educated women used the pill while less educated women used injectables. Even though most women feel that contraceptive use is largely the responsibility of the woman herself, due to male domination and pressures on women to prove their fertility, the choice is not always hers. Studies in Africa and other parts of the world also highlighted that communication between couples regarding fertility, child spacing and contraception affected whether and how women used contraception. Health service barriers posed a huge challenge to women using contraception – particularly in the rural areas. Waiting times, opening times as well as distances to

clinics comprised regular usage. Staff attitude to younger women using contraception also deterred these women from going to the clinics to get contraception. Studies also showed that some women were concerned with the nurses' lack of respect for confidentiality and privacy.

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Part C: Manuscript

Title: Factors Associated with Contraceptive Use in a rural area in the Western Cape, South Africa

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Keywords: **contraceptive use, rural, Western Cape, factors associated, reproductive health**

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Comment on race terminology: Socially classified racial group which is referred to in this article as 'race' and which in South Africa is based on the apartheid construct which classified people as 'white', 'coloured', 'black/African' and 'Indian'. The structural conditions of the past, most notably the racial discrimination and labour migration policies systematised by apartheid-era governments, underlie much of the current variation in population health in South Africa. Use of the term in this study does not imply legitimisation of the discriminatory intent with which these categories were used under apartheid, but is intended to serve as a way to identify risk factors that can be used to achieve redress of health inequalities.

ABSTRACT

BACKGROUND: Safe and effective contraceptive use can improve women's reproductive health. Although the contraceptive prevalence rate in South Africa is comparable to rates globally, the distribution is inequitable and marginalises poor and rural women. This study aimed at identifying factors associated with contraceptive use in a rural area in South Africa.

METHOD: Cross-sectional survey data based on face-to-face interviews with female participants between 18 to 44 years were collected for a primary FAS prevention study in rural and urban South Africa. This study examined data for rural women only. The outcome variable was Effective Contraceptive use (ECC) which included use of oral contraceptives, condoms or injectables, or having been sterilised. Independent variables included socio-demographic factors, substance use, psychosocial factors, community factors, childbearing characteristics and partner characteristics

RESULTS: Women were more likely to use ECC if they reported high self-esteem (compared to low or moderate self-esteem PRR=1.53; 95% CI: 0.99 – 2.39); if they strongly or moderately agreed that their culture entitled men to children compared to those who disagreed (PRR=1.55; 95% CI: 0.95 – 2.52); and if they had one child or more compared to no children (PRR=2.51; 95% CI: 1.64 – 3.84).

CONCLUSION: To promote contraceptive use in in similar rural populations, family planning programmes could focus on increasing men's approval of contraception, improving partner communication around family planning and bolstering women's confidence in their reproductive decision-making, particularly their self-esteem. There should be greater focus on nulliparous women and women between 18 and 24 years old who have the lowest Contraceptive prevalence rate (CPR).

(Word count: 252)

INTRODUCTION

Contraception is defined as the prevention of pregnancy through temporary or permanent means[1]. Safe and effective contraceptive use has the potential to improve women's reproductive health as well as the lives of their children. Millennium Development Goal (MDG) 5, which focuses on maternal health, aims to decrease the Maternal Mortality Ratio (MMR) by 75% in 2015 from the levels in 1990[2]. When compared to other middle-income countries with similar levels of economic development, the MMR in South Africa is elevated and poor women are more affected than their rich counterparts[2]. For total current MMR in South Africa, there are varying estimates, from 230 to 702 per 100 000 live births. This is due to varying inconsistent data[2]. The MMR in South Africa has been increasing rather than decreasing since 1990 and was 425% higher by 2008 than what it should have been if South Africa had been on track to achieve MDG 5[2,3]. The contraceptive prevalence rate (CPR), which is the percentage of all sexually active women aged 15-49 who are using a modern contraceptive method[4], increased modestly from 61.2% in 1998 to 64.6% in 2003[4,5]. The rural CPR rose from 52.7% in 1998[5] to 61.8% in 2003[4], while the urban remained more or less stable, dropping slightly from 66.0% to 65.8%4,[5]. South Africa's CPR is slightly higher than the global CPR of 63% with the more developed countries having a CPR of 72% and the less developed ones 62%[6]. The global CPR's refer to sexually active women who are married or in a union. In South Africa, marital rates are low and therefore use of sexually active women in the denominator is a more realistic basis for estimating CPR rather than women who are married or in a union. However, this limits comparability to global CPR.

The South African Demographic and Health survey (SADHS) for 2003 showed that sexually active women had a CPR that ranged between 68.7% in the 15-19 year age group (which was the highest) and 57.2% in the 45-49 year age group (which was the lowest)[4]. Women younger than 20 years complained of barriers to obtaining contraceptives arising from a lack of knowledge, obstacles to access, concerns over

side effects, a fear of future infertility[7] and the negative attitude of nursing staff in the clinics[8]. In terms of race group black /African women had the lowest CPR (62.2%) with white women having the highest (80.9%)4. The South African history of racial discrimination accompanied by gross inequalities in access to education and economic opportunities as well as health services is reflected in CPR as well[9] and experienced by disenfranchised or marginalised racial groups elsewhere globally[10].

Cultural values, beliefs and communication with their partners are all issues affecting women's contraceptive use. South African society, particularly in the rural areas, is still male-dominated and women feel pressure to prove their fertility[11,12]. Better communication between women and their partners increased the likelihood of using contraception[13,]. Women with high self-esteem were more likely to use contraception[14, 15]. Women with higher education levels in South Africa were found to be more likely to use contraception[5,8] similar to findings globally[16,17,18].

The SADHS showed a 10% decline in the CPR in the Western Cape from 73.7% in 1998 to 63.4% in 2003[4,5]. This requires further exploration to ascertain if the rural areas in the Western Cape are responsible for that decline. Globally, it is suggested that rural rates are lower, and in the SADHS, the rural rates have risen but are still lower than urban rates. Hence, it is important to look at rural contraceptive use and its predictors. This report attempts to direct attention to the rural women who are an underrepresented group in reproductive health research[17].

The aim of the study was to describe the prevalence of effective contraceptive use in fertile women between 18 to 44 years of age in a rural Western Cape population, and to determine socio-demographic, substance use, psychosocial, childbearing experiences and partner characteristics associated with women's contraceptive use.

METHODS

In 2006, a project to develop a comprehensive foetal alcohol syndrome prevention model was started in South Africa[27]. The project included a baseline cross- sectional household survey in an urban and rural area of South Africa to determine the prevalence and predictors of being at risk of an alcohol-exposed pregnancy (AEP) among women of child-bearing age in an urban and rural location in South Africa. Data collected for this study included socio-demographic factors, history of the last pregnancy, substance use variables and partner characteristics, as well as contraceptive use, amongst others. *This* study was conducted as a reanalysis of the primary data collected in the Western Cape (rural sample). The study population were therefore fertile, women of reproductive age (18-44yrs), residing in the 3 chosen municipalities (namely Bergrivier, Swartland and Cedarberg), which are commercial farming areas in the West Coast District. Stratified cluster random sampling was used with the intention of recruiting 650 women as participants. From a total set of 1450 farms across the 3 municipalities, 150 farms were randomly selected within the boundaries of the selected areas. Oversampling was done to account for uncontactable, ineligible, and non-functional farms. All eligible women who met the inclusion criteria in every household within each of the 58 participating farms were asked to participate in the study because of the small average number of households per farm (approximately 7) and the large distances between farms.

A structured questionnaire was used. Fieldworkers were trained before visiting the selected households. They conducted face-to-face interviews with eligible women in their language of preference. Only those women who gave informed consent were interviewed. The interviews were conducted at the participants' homes, took between 15 and 90 minutes and included a definition of ECC.

The outcome variable was ECC which included taking the pill, use of condoms, use of injectables or having been sterilised which were scored as yes (1). A (0) was allocated if the participant had not used

any contraception or was using ineffective contraception, namely calendar / rhythm, withdrawal, traditional / herbs/ remedies or none and abstinence.

The Independent / exposure variables were mostly measured in binary scales and comprised 5 domains:

Socio-demographic factors include age, education, marital status, ethnicity and socioeconomic status. Age was categorised into three age groups: 18–24 years, 25–34 years and 35–44 years, respectively. Educational status was divided into primary schooling or lower, versus above primary education. Marital status was categorised into married (legally and traditionally), cohabiting, and not married. Race was either 'black/African', 'coloured', ''white'', and ''Asian/Indian''. Unemployment was categorised as not currently being in any form of employment. Participants who reported possession of five or more out of eight household assets and commodities (electricity, a radio, a television, a telephone, a fridge, a computer, a washing machine and a cellular telephone) were categorised into high socio-economic status(SES) while those reporting less than five had a low SES.

Regarding substance use, a participant who smoked in the last 30 days was classified as a current smoker. Alcohol use was measured using the 10-item Alcohol Use Disorders Identification Test (AUDIT)[19] where participants were divided into a score of 8 or more classifying someone as having harmful alcohol consumption.

Psycho-social factors included self-esteem, religious involvement, male entitlement and perceptions about cultural prescriptions on childbearing. Using Rosenberg's (1965) 10-item self-esteem scale, the answers were summed and split across the 75th percentile to denote high versus low self-esteem. Questions assessing the participants' religiosity and level of religious practice were assessed on a 6-item religious orientation scale[20]. Scores were summed, and divided into high and low religiosity split at the

75th percentile. Using a single-item question answered on a Likert scale, participants' extent of agreement that their culture entitles males to have as many children as they wish, a score of (1) was allocated to those who strongly or moderately agreed. All others were allocated a score of (0) on this measure. A single-item question was used to assess participants' belief that their culture prescribed a childbearing obligation to women. A score of (1) was allocated to those who agreed, and a score of (0) to those who did not agree.

Childbearing experiences included parity, previous unwanted pregnancy and age at first sex. Parity was dichotomised into more than one (1) versus one or none (0). For previous unwanted pregnancy, the participants were asked : *At the time you became pregnant with your last child, did you want to become pregnant then, did you want to wait until later, or did you want no (more) children at all?* Dummy variables were created for a great deal, a little, not much, or not at all. Age at first sex was dichotomised into less than or equal to 18 years (0) and greater than 18 years (1).

Partner characteristics were age which was dichotomised into those participants who had a partner aged 29 years or younger and 30 years and older. The partners' education was also divided into those who had an education to Grade 9 or lower, and those with above Grade 9 education.

Statistical Analysis

Data was analysed in STATA $^{(R)}$ 10.0. For the estimation of CPR, "sexually active" women, defined as a woman who reported sex in the last 4 weeks, were used for the denominator for comparability. For estimation of associations with ECC, multiple logistic regression was used, with several methods used for model building. Initial cross-tabulations were conducted of dependent and independent variables to identify associations based on Chi-squared testing. Logistic regression analysis was then used to determine any significant bivariate associations between each individual predictor and ECC. Independent variables that had an association with ECC at a probability of $p<0.1$ were then included in

multivariate logistic-regression models, with ECC as the dependent outcome. Prevalence risk ratios (PRR) were calculated from the Beta-coefficient regression estimates. Likelihood-ratio statistics and Aikaikes Information criterion (AIC) were used to contrast the relative goodness of fit between competing logistic-regression models. In order to identify the best model, models were examined for the lowness of their AIC value as well as tested using a likelihood ratio test that compares difference in deviances of nested models against a chi-squared distribution. Although *Male entitlement* was not significant at the p value < 0.05, the model without it was not as good a fit as the one with it and was significant at p<0.1. As a result, the model with the best fit was chosen.

In a sensitivity analysis, women who reported having been sterilised were removed from the dependent variable and the multivariate analysis, using the same independent variable, re-run to see if results differed.

A plot of residuals versus linear predictors indicated that the form of this model was adequate. Also, the Pearson goodness-of-fit test indicated that there was no significant difference between the predicted and observed models. Multivariate analysis was repeated using *svy* command to adjust for clustering effect, due to sampling all women in each farm, and the magnitude of the effects remained the same. A sensitivity analysis was conducted by repeating the same process above for the sub-sample of women who were sexual active to see if results differed.

Ethics approval was granted by the Research Ethics Committee of the University of Cape Town, HREC REF: 026/2012. All relevant stakeholders were also consulted and approached for permission prior to starting the study.

RESULTS

Of the 496 women approached to participate in the study, 83% completed the questionnaire. There were 412 respondents from the 3 municipalities. Of respondents, 58% (n=239) were sexually active. With regards to the outcome variable, namely ECC, 44.6% (n=184) of the participants were using ECC (including the pill, injectables and sterilisation) with 55.3% (n=228) using no contraception or ineffective contraception. Amongst sexually active women, the respective percentages are 47.3% (n=113) and 52.7% (n=126). Five women (2.1%) reported condom usage as a contraceptive method, but all 5 women also reported using injectables. This number was reduced to 3 (2.24%) for sexually active women. The mean age was 31 years with 24.8% (n=102) being in the 18-24 year age group, 39 % (n=161) in the 25-34 year age group and 36.2 % (n=149) in the 35-44 year age group. For the sub-sample of sexually active women, the mean age was 31 years with the respective figures and percentages 26.4% (n=63), 37.7 % (n=90) and 36.0 % (n=86). In terms of race, 10% (n=24) were black / African and 89.8% (n=212) were coloured.

The majority of the women were employed (80.1%; n=330) and 35.9% (n=147) women reported owning 5 or more amenities. For the sexually active women, the percentages were 81.2% (n=194) and 29% (n=69). Amongst the women, 61 % (n=236) reported current smoking at the time of the study. The AUDIT score showed that 32.8% (n=135) of the women had a score of 8 or more. Regarding self – esteem, 67.7% (n=270) of the women had low or moderate self-esteem while 74.8% (n=308) of women agreed that males should be entitled to make fertility decisions. A lower proportion of women 40.6% (n=164) had no children when compared to those with more than one child. For the sexually active women, the figures and percentages were 59.4 % (n=142) for current smoking, 63.6% (n=152) for a high AUDIT score of 8 or more, 36.4% (n=87) for low or moderate self-esteem, 71.1% (n=170) agreed men should be entitled to make fertility decisions and 41.4% (n=99) had no children (Table 1).

Table 1: Demographic, Psycho-social, substance use, childbearing practices and partner characteristics for the full sample and sexually active sub-sample

	Full Sample		Sexually active	
	N	Percentage (%)	N	Percentage (%)
Demographic Factors				
Age (years)				
18-24	102	24.8	63	26.4
25-34	161	39.1	90	37.7
35-44	149	36.2	86	36.0
Education				
Primary level	244	59.4	151	63.2
above primary level	167	40.6	88	36.9
Marital Status				
Married	135	32.8	85	35.6
Living with partner / cohabiting	143	34.7	106	44.4
Never married / single	125	30.3	44	18.4
Other (divorced/widowed)	9	2.2	4	1.7
Race				
Black / African	35	8.6	24	10.0
Coloured	373	91.4	212	89.8
Employment Status				
Unemployed	82	19.9	45	18.8
Employed	330	80.1	194	81.2
Socioeconomic Status				
less than 5	263	64.2	169	71.0
5 or more	147	35.9	69	29.0
Substance Abuse				
Current Smoker				
No	151	39	97	40.6
Yes	236	61	142	59.4
Alcohol (Audit)				
score less than 8	277	67.2	152	63.6
score of 8 or more	135	32.8	87	36.4
Psycho-social				
Self-esteem				
low/moderate	270	67.8	153	66.5

High	129	32.3	77	33.5
Religiosity				
low/moderate	284	69.6	167	71.1
High	124	30.4	68	28.9
Male Entitlement				
Disagree	104	25.2	69	28.9
Agree	308	74.8	170	71.1
Childbearing Characteristics				
Parity				
None	164	40.6	99	41.4
greater than 1	240	59.4	140	58.6
Previous Unwanted Pregnancy				
A great deal	223	62.3	137	64.6
A little	32	8.9	20	9.4
Not much	37	10.3	21	9.7
Not at all	66	18.4	34	16.0
Age at first Sex				
less than or equal to 18	258	62.7	174	72.8
greater than 18	154	37.4	65	27.2
Partner Characteristics (Current Partner)***				
Age (years)				
18-29 years	207	50.2	96	40.2
> or equal to 30	205	49.8	143	59.8
Education				
up to grade 9	340	82.5	192	80.3
above grade 9	72	17.4	47	19.7

***These include the partners of single or never been married women as well

Table 2: Types of Contraception*: Frequency and Percentage for the full sample and the sexually active sub-sample

Contraceptive	Full Sample		Sexually Active	
	N	Percentage	N	Percentage
Oral Contraceptive Pill	18	4.4	5	4.3
IUD	0			
Injectables	154	37.4	89	37.3
Diaphragm/foam/jelly	0			
Female sterilization	12	2.9		
Male sterilization	0			
Calendar/rhythm	0			
Withdrawal	0			
Traditional herb/remedies	0			
Condoms	5	1.2	3	2.6
Abstinence	1	0.2		
No contraceptive method or non-users**	227	55.1	145	60.1
Total	412	100	239	100

*methods reported as used are not mutually exclusive

**_no contraceptive method_ means that none was filled in the questionnaire. _Non-users_ means that the women did not use any.

Bivariate analysis in the full sample (Table 3) showed associations ($p<0.1$) between Effective contraceptive use and the following variables: Age group 2, the 25-34yr olds compared to the 18-24 year age group women (PRR = 1.69, 95% CI: 1.02 – 2.81), being never married or single when compared to being living with a partner or cohabiting (PRR=0.59, 95% CI: 0.36-0.96), male entitlement (PRR=1.77, 95% CI: 1.11-2.80), increasing parity (PRR=2.34, 95% CI:1.55-3.53), high self-esteem compared to low (PRR= 1.48, 95% CI: 0.97-2.25), age 18 or older at first sex compared to less than 18 (PRR=0.65, 95% CI: 0.43-0.98) and partner age of 30 or more compared to less than 30 years (PRR = 1.42, 95% CI: 0.56-2.10). Bivariate analysis in the sexually active group alone (Table 3) showed a similar pattern of associations

with the associations being generally stronger but with slightly wider confidence intervals. However, the exceptions are male entitlement (PRR = 1.88, 95% CI: 1.11 – 2.80), age of first sex (PRR = 0.66, 95% CI: 0.37 – 1.19) and being divorced or widowed category of marital status (PRR = 0.78, 95% CI: 0.38 – 1.58), for which the associations were all in the same direction and similar magnitude but were not statistically significant.

Table 3: Associations with Effective Contraception: Bivariate Prevalence Rate Ratio's (PRRs), p-values and 95% Confidence Intervals

	Full Sample			Sexually Active only		
Demographic Factors	Bivariate PRR	p-value	95% CI	Bivariate PRR	p-value	95% CI
Age (years)						
18-24	1			1		
25-34	1.69	0.04	1.02-2.81	2.03	0.03	1.05-3.91
35-44	1.52	0.12	0.90-2.53	1.35	0.38	0.69-2.61
Education						
Primary level	1			1		
above primary level	0.78	0.21	0.52-1.16	1.02	0.92	0.61-1.74
Marital Status						
Living with partner / cohabiting	1			1		
Married	0.91	0.71	0.57-1.46	1.04	0.89	0.59-1.84
Other (divorced/widowed)	0.91	0.76	0.21-3.14	172	0.98	n/a*
Never married / single	0.59	0.03	0.36-0.96	0.78	0.48	0.38-1.58
Race						
Black / African	1			1		
Coloured	0.96	0.92	0.48-1.93	0.74	0.49	0.38-1.58
Employment Status						
Unemployed	1			1		
Employed	1.08	0.77	0.66-1.75	0.77	0.45	0.40-1.49
Socioeconomic Status						
less than 5	1			1		
5 or more	1.02	0.94	0.67-1.52	0.96	0.89	0.55-1.69

* Not applicable – numbers for this this category in the sexually active group were too small to estimate a confidence interval

Substance Abuse						
Current Smoker						
No	1			1		
Yes	1.04	0.84	0.69-1.57	1.32	0.32	0.76-2.28
Alcohol (Audit)						
score of 8 or more	1			1		
score less than 8	0.97	0.90	0.64-1.47	0.92	0.76	0.54-1.56
Psycho-social						
Self-esteem						
low/moderate	1			1		
High	1.48	0.07	0.97-2.25	2.06	0.01	1.20-3.60
Religiosity						
low/moderate	1			1		
High	1.17	0.46	0.77-1.80	0.99	0.97	0.56-1.74
Male Entitlement						
Disagree	1			1		
Agree	1.77	0.05	1.11-2.80	1.88	0.03	1.06-3.36
Childbearing Characteristics						
Parity						
None	1			1		
greater than 1	2.34	<0.01	1.55-3.53	2.67	<0.01	1.56-4.56
Previous Unwanted Pregnancy						
A great deal	1			1		
A little	0.97	0.94	0.46-2.04	1.39	0.49	0.54-3.58
Not much	1.20	0.67	0.58-2.30	1.85	0.19	0.72-4.76
Not at all	1.32	0.32	0.76-2.29	1.63	0.21	0.76-3.49
Age at first Sex						
less than 18	1			1		
> or equal to 18	0.65	0.04	0.43-0.98	0.66	0.17	0.37-1.19
Partner Characteristics						
Age (years)						
18-29 years	1			1		
> or equal to 30	1.42	0.66	0.56-2.10	1.18	0.53	0.70-1.99
Education						
up to grade 9	1			1		
above grade 9	1.11	0.66	0.67-1.86	1.34	0.36	0.71-2.54

Table 4: Associations with Effective Contraception: Multivariate analysis with sensitivity analyses (i) excluding sterilisations from the dependent variable; (ii) the sub-sample of sexually active women only

	Including Sterilisation			Excluding Sterilisation			Sexually active only		
Demographics	PRR	p value	95% CI	PRR	p value	95% CI	PRR	p value	95% CI
Male Entitlement	1.55	0.08	0.95-2.52	1.56	0.08	0.95-2.55	1.27	0.09	0.87 - 1.86
Self-Esteem	1.53	0.06	0.99-2.39	1.55	0.05	0.99-2.42	1.29	0.07	0.98 - 1.71
Parity	2.51	<0.01	1.64-3.84	2.37	<0.01	1.54-3.65	1.66	0.04	1.17 - 2.35

All the variables in Table 4 were included in the final model.

The independent variables associated at the level p<0.1 were included in the multivariate model building process. After model building and model checking, the final model included only *Self-esteem*, *Male entitlement* and *Parity*. There were 12 women with sterilisations who were excluded in a second sensitivity analysis. There was no difference in the results whether women who were sterilised were included or not (Table 4).

For the full sample, women having a high self-esteem are 1.53 (95% CI: 0.99 – 2.39) times more likely to use ECC when compared with those who have low or moderate self-esteem. Women who strongly or moderately agreed that their culture entitled men to have children were 1.55 (95% CI: 0.95 – 2.52) times more likely to use ECC when compared to those women who disagreed. Lastly, women who had one child or more were 2.51 (95% CI: 1.64 – 3.84) times more likely to use ECC when compared to those women who did not have any children. A sensitivity analysis excluding women who had been sterilised found essentially unchanged associations. The findings were also similar in the sexually active sub-group group, but were somewhat attenuated in strength (Table 4).

DISCUSSION

The study results revealed notable findings. The CPR for sexually active women in this study was 47.3% indicating that more women were not using ECC than those who were. The CPR was lower than the national CPR (64.6%) and the rural CPR (61.8%) for sexually active women in 2003.

The CPR was also lower than the Western Cape CPR of 63.4% which might suggest large discrepancies between urban and rural women's CPR in the Western Cape. It is known that the study areas are particularly poor socioeconomic areas[21]. McNair et al found that, in adolescents, low socioeconomic status was associated with reduced contraceptive use. Participants of similar age, but of a high socioeconomic status were found to use contraception more frequently[22]. Milne and Glasier[22] also found that females from poorer backgrounds were more likely to have more inconsistent contraceptive use. Reasons they hypothesized were that poor socioeconomic status women are less likely to have a high quality of education, including information about sexual activity. Studies in Bangladesh[13] and the United Kingdom[10] show that poorer women are less likely to use contraception than their wealthier counterparts. Lastly, women of lower SES also have limited access to health services – in particular, in rural areas, which will lower their contraceptive access[17].

This rural study population are commercial farm workers who live on private farms. As a result, farm workers are highly dependent on their employers. Travelling to and from the clinic are most likely arranged by, and dependent on the farmer as employer. Women workers may well be too embarrassed, or fearful of losing their jobs to ask the farmer for transport to the clinic to access family planning.[21] Changes in the organisation of health services in the rural Western Cape may also exacerbate this problem. In the last five years the Western Cape Department of Health has phased out mobile clinics with the intention of establishing fixed clinics that are within 5 kilometers of a community to serve them.[23] Mobile clinics have therefore been limited to only the most remote rural areas. Travelling to the

fixed clinics is therefore time consuming and evidence presented to a public hearing on the conditions for farm workers in 2003 suggested that farm workers are unwilling to take a half-day off to access health care as they will lose much-needed wages.[23]

Another possible reason for the lower CPR is the difference in age groups. In the SADHS, the youngest age group is 15 to 19 year olds. This group also had the highest CPR of 68.7%. The study population in this study looked at adolescents 18 years of age and older, which could decrease the overall CPR when compared to the SADHS figures. Under-reporting could also be an issue in the study. Women could have misunderstood the questionnaire or were not honest in their answers. However, this would not account for a 14% difference.

With regards to type of contraceptive choice, an overwhelming majority of women in this study use injectables and a minority use the pill. Although condom usage appeared as an option for delaying or preventing a pregnancy, rates of condom use for contraceptive purposes were very low (Table 2) and the women who indicated condom usage were also simultaneously using injectables for contraception.

With regard to associations with effective contraception, both the full sample and the sexually active group showed similar patterns of associations, with the sexually active group having weaker associations and wider confidence intervals, a finding explained by the smaller sample size with the exclusion of women who were not sexually active. The findings regarding high self-esteem are consistent with other studies. McNair et al[15] highlighted that females with a high self-esteem were more likely to frequently use contraception effectively and sustain their use. Ethier et al[24] showed that a low self-esteem predicted a lack of contraceptive use. In Mecca et al's[25] book on the *Social Importance of self-esteem*, 4 of the 5 studies investigating the association between self-esteem and contraceptive use reported similar findings namely that low-self-esteem is associated with less frequent or less sustained use of contraceptives.

The findings for *male entitlement* were inconsistent with the literature where, in Southern Africa , male domination and pressures on women to prove their fertility are common issues resulting in women *not* using contraception. For example, a Zambian study found that only 20% of men approve of contraceptive use which they explained as the result of a belief that contraception will prevent them having the number of children they desire[26]. The difference in this study is that the rural site is a commercial farming area, unlike traditional rural areas where men are the decision makers[18]. A possible explanation could be that, even though women may believe that men have entitlements to children, they subvert that in their use of contraceptive services. Injectables, which are highly prevalent in South Africa, enable women to be on contraception without the knowledge of her partner. In this way, she would have more control over her fertility, even though she would defer to him when asked about it.

Parity also had a protective effect. Morojele et al,[27] in their study on Alcohol exposed pregnancy predictors, hypothesised that having children exposes a woman to family planning and antenatal clinics from which she can learn about accessing contraceptives. Similarly, London's study on PAP smear coverage amongst rural Western Cape women suggested that parity was associated with improved access to the public health service for cervical cytology[28] and is in keeping with the findings in this study.

There is an absence of a race association, which may indicate cultural differences related to the study setting or limited power because of the small number of women who were not coloured.

Removing sterilisation from the dependent variable ECC did not change the pattern of the results. One might have hypothesised that the women who chose to sterilise are different from those who use less permanent means of contraception. This would result in different factors influencing their contraceptive use and choice. However, the number of sterilised women was too small to change the effect measures.

There are some limitations to be noted. The study is a cross-sectional study which cannot establish cause and effect in associations observed. A cohort study could be a better alternative and could elicit more information. The study sample included women between 18 and 44 years, and excluded adolescents so no inference can be made to this group. The validity of the outcome variable namely *Effective Contraception use* cannot be established with certainty because it was self-reported and not corroborated with medical records or any other information sources. However, the main focus of the primary study was on risk for alcohol exposure in pregnancy and there would not have been any reason for the women to under-report their contraceptive use. Similarly, alcohol consumption and smoking was self-reported which could have led to under-reporting. However, there are other studies[16,27,28], cited in the text, amongst farmworker populations reporting similar rates of smoking and alcohol consumption to those found in this study. It is unknown if the *single or never married* women have regular partners or casual partners. This is a limitation of the data because one of the key issues of contraception use is partner acceptance and *single or never married women* may have more control over this than their *married or cohabiting* counterparts. Moreover, notwithstanding these limitations, the findings were generally consistent with the literature.

CONCLUSION

The CPR amongst this study population, sampled from rural women in commercial farming areas of the Western Cape, was lower than the rest of the province and country including that of the rural population nationally for sexually active women. To improve CPR, the study findings suggest the following programmatic interventions may be helpful: To promote contraceptive use particularly in a rural area, family planning programmes could focus on increasing men's approval of contraception, improving partner communication around family planning and bolstering women's confidence in their reproductive decision making. Efforts should also be made to improve self-esteem of women, in

particular younger women and adolescents as well as younger women between the ages of 18 to 24 years old. This age group had the lowest CPR and needs to have a specific focus. Lastly, there should be a greater focus on nulliparous women for family planning than their counterparts who already have children. These strategies imply community-based health promotion interventions that address women's reproductive health in a comprehensive way, which would draw on multi-sectoral resources (e.g. Department of Social Development, Labour, etc) and private sector (e.g. employers, NGO's). However, given the limitations of a cross-sectional design, it would be ideal to conduct a cohort study to better investigate cause and effect relationships. ECC use has the potential to greatly improve women's reproductive health and improving the CPR will make huge strides in reducing maternal mortality in South Africa. There needs to be more investment in this as a tool for improving the lives of South African women, in particular rural farming women. Further studies should look to explain why rural farming women have a lower CPR than other rural women. In particular, barriers arising from the employer-employee relationship that exists on commercial farms and which are not applicable to other rural settings like those surveyed in the SADHS may explain the particularly low CPR in this population.

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Part D: Documents

APPENDIX A: QUES IONNAIRE

WOMEN, PREGNANCY A D HEALTH

QUESTIONNAIRE

Questio naire Numb er	
Interviewer Number	
Commu ity Number	

UNIVERSITY OF CAPE TOWN

TIME NOW: _____

DATE: _____

GENERAL INSTRUCTIONS

We will work through the questionnaire as follows: All your answers will be marked in my copy of the questionnaire. I will ask the questions and give you the answer choices. You will have a copy of the questionnaire so that you can follow along. Pick the answer that is the closest to how you feel. Usually I will want you to tell me the number that goes with the answer you pick. The interview will take between forty five minutes and one hour to complete.

Please note that there are no right or wrong answers to the questions asked. Please feel free to answer just what you think. If there are questions you really do not want to answer, you may skip them.

PLEASE REMEMBER THAT YOUR NAME WILL NOT BE PUT ON THIS QUESTIONNAIRE. Your answers will not be shared with anyone. Only the research staff will have access to the questionnaire once it has been completed.

Thank you for helping us with this study.

Section 1: Demographic Characteristics

First we would like to ask you a few questions about yourself.

Throughout the questionnaire, please circle the correct response.

1.1 How old are you? _____years

1.2 What is the highest level of education you have passed?

Less than one year completed	1
Sub A/Class 1/Grade 1	2
Sub A/Class 2/Grade 2	3
Standard 1/Grade 3	4
Standard 2/Grade 4	5
Standard 3/Grade 5	6
Standard 4/Grade 6	7
Standard 5/Grade 7	8
Standard 6/Grade 8	9
Standard 7/Grade 9	10
Standard 8/Grade 10	11
Standard 9/Grade 11	12
Standard 10/Grade 12	13
Further studies – incomplete	14
Diploma/other post school – complete	15
Degree	16

1.3 What is your current marital status?

Legally married	1
Traditionally married	2
Living with man or woman in union	3
Never married/Single	4
Divorced	5
Married but separated	6
Widow	7

1.4 Which of the following is the main language spoken at home? (Please circle only one)

English	1
Afrikaans	2
IsiXhosa	3
IsiZulu	4
SeSotho	5
SeTswana	6
SePedi	7
SiSwati	8
TshiVenda	9
Zitsonga	10
IsiNdebele	11
Other (Please specify)	12

1.5 Which race group do you consider yourself to belong to?

Black/African	1
Coloured	2
White	3
Asian/Indian	4
Other (Please specify)	5

Section 2: Economic factors

Now we would like to ask a few questions about you, your work and the money that is available to you to spend.

2.1 Have you done any paid work in the last 12 months?

No	0
Yes	1

2.2 Which of the following describes your current employment status?

Unemployed	1
Employed part-time	2
Employed full-time	3
Self-employed	4

2.3 What kind of work do you do? (If working, please tell me your occupation. For example, plumber, street trader, cattle farmer, primary school teacher, domestic worker)

Not working	0
Working (Please specify)	1

2.4 If you are not working, how do you spend your free time when other people are at work?

2.5 Please indicate which of the following are your sources of income. Please answer this question whether or not you are working.

		Yes	No
A	Work	1	0
B	Spouse/partner	1	0
C	Parents	1	0
D	Brothers and/or sisters	1	0
E	Children	1	0
F	Child Support Grant	1	0
G	State Old Age Pensions	1	0
H	Disability Grant	1	0
I	Care Dependency Grant	1	0
J	Foster Care Grant	1	0
K	Grants-in-Aid	1	0
L	Workman's Compensation Fund	1	0
M	Other (Please specify)	1	0

Section 3: Household factors

3.1 Is the house you live in:

Owned by your family	1
Rented	2
Owned by farmer	3
Other (please specify)	4

A.

3.2 How many rooms are there in the house?

	Rooms

3.3 How many bedrooms are there in the house?

	Bedrooms

3.3 How many bathrooms are there in the house?

	Bathrooms

3.5 Does your house have:

		Yes	No
A	Electricity	1	0
B	A radio	1	0
C	A television	1	0
D	A telephone	1	0
E	A fridge	1	0
F	A computer	1	0
G	A washing machine	1	0
H	A cell phone (anybody)	1	0

3.6 Which of the following live in the same household with you?

		Yes	No
A	Live alone	1	0
B	Husband	1	0
C	Partner	1	0
D	Child or Children	1	0
E	Brother(s) and/or sister(s)	1	0
F	Mother/Female guardian	1	0
G	Father/Male guardian	1	0
H	Grandparent(s)	1	0
I	Other (please specify)	1	0

3.7 How many people usually live and sleep in your household?

Number of people

3.8 Let us speak about your household and what it can afford. How often do the people here go hungry or have no food to eat?

Never	0
Seldom	1
Sometimes	2
Often	3

- 3.9 Your family has enough money for:

		Never	Some-times	Always	Not Applicable
A	Buying food	0	1	2	9
B	Paying for transport (bus, taxi, train fare, petrol bills)	0	1	2	9
C	Paying bills (rent, light, water, telephone, etc.)	0	1	2	9
D	Paying doctors and for medicine	0	1	2	9
E	Buying school supplies, uniforms, books, shoes	0	1	2	9
F	Buying clothes	0	1	2	9
G	Buying firewood, coal, paraffin	0	1	2	9
H	Paying for funerals and other ceremonies/festivities	0	1	2	9

Section 4: Community

4.1 For how long have you lived in this community?

	Years
	Months

Please indicate the extent to which you agree with the following statements about your community.

		Strongly Agree	Moderately Agree	Neither Agree Nor Disagree	Moderately Disagree	Strongly Disagree
4.2	There are many recreational facilities in your community	0	1	2	3	4
4.3	You can easily use the recreational facilities in your community	0	1	2	3	4
4.4	It is easy for you to buy alcohol in your community if you want to	0	1	2	3	4
4.5	A lot of people drink heavily in your community	0	1	2	3	4
4.6	Your community accepts the abuse of alcohol	0	1	2	3	4
4.7	There are many advertisements of alcoholic drinks in your community	0	1	2	3	4
4.8	People around here are willing to help their neighbours	0	1	2	3	4
4.9	This is a close-knit or tight neighbourhood where people generally know each other	0	1	2	3	4
4.10	If you had to borrow R100 in an emergency, you could borrow it from a neighbour	0	1	2	3	4
4.11	People in this neighbourhood generally don't get along with each other	0	1	2	3	4
4.12	People in this neighbourhood can be trusted	0	1	2	3	4
4.13	If you were sick you could count on your neighbours to shop for groceries for you	0	1	2	3	4
4.14	People in this neighbourhood do not share the same values	0	1	2	3	4

Section 5: Your feelings about yourself

Below is a list of statements dealing with your general feelings about yourself. Please indicate the extent to which you agree with each statement.

		Strongly agree	Agree	Disagree	Strongly disagree
5.1	On the whole, I am satisfied with myself	1	2	3	4
5.2	At times, I think I am no good at all	1	2	3	4
5.3	I feel that I have a number of good qualities	1	2	3	4
5.4	I am able to do things as well as most people	1	2	3	4
5.5	I feel I do not have much to be proud of	1	2	3	4
5.6	I certainly feel useless at times	1	2	3	4
5.7	I feel that I am a person of worth, at least on an equal plane with others	1	2	3	4
5.8	I wish I could have more respect for myself	1	2	3	4
5.9	All in all, I am inclined to feel that I am a failure	1	2	3	4
5.10	I take a positive attitude towards myself	1	2	3	4

Section 6: Health

6.1 In general, would you say your health is:

Excellent	1
Very Good	2
Good	3
Fair	4
Poor	5

6.2 For how long (if at all) has your health limited you in each of the following activities? Please choose one number on each line.

		Limited for more than 3 months	Limited for 3 months or less	Not limited at all
A	The kinds or amounts of vigorous activities you can do, like lifting heavy objects, running or participating in strenuous sports	1	2	3
B	The kinds or amounts of moderate activities you can do, like moving a table, carrying groceries	1	2	3
C	Walking uphill or climbing a flight of stairs	1	2	3
D	Bending, lifting or stooping	1	2	3
E	Taking a ten-minute walk	1	2	3
F	Eating, dressing, bathing or using the toilet	1	2	3

6.3 How much bodily pain have you had during the past 4 weeks?

None	1
Very Mild	2
Mild	3
Moderate	4
Severe	5
Very Severe	6

6.4 Does your health keep you from working at a job, doing work around the house or going to school?

Yes, for more than 3 months	1
Yes, for 3 months or less	2
No	3

6.5 Have you been unable to do certain kinds or amounts of work, housework or schoolwork because of your health?

Yes, for more than 3 months	1

Yes, for 3 months or less	2
No	3

For each of the following questions, please choose the number for the one answer that comes closest to the way you have been feeling during the past month.

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
6.6	How much of the time, during the past month, has your health limited your social activities (like visiting friends or close relatives)?	1	2	3	4	5	6
6.7	How much of the time, during the past month, have you been a very nervous person?	1	2	3	4	5	6
6.8	During the past month, how much of the time have you felt calm and peaceful?	1	2	3	4	5	6
6.9	How much of the time, during the past month, have you felt downhearted and blue?	1	2	3	4	5	6
6.10	During the past month, how much of the time have you been a happy person?	1	2	3	4	5	6
6.11	How often, during the past month, have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6

6.12 Please choose the number that best describes the extent to which each of the following statements is true or false for you.

		Definitely true	Mostly true	Not sure	Mostly false	Definitely false
A	I am somewhat ill	1	2	3	4	5
B	I am as healthy as anybody I know	1	2	3	4	5
C	My health is excellent	1	2	3	4	5
D	I have been feeling bad lately	1	2	3	4	5

Section 7: Alcohol Use

The questions in this section are about your drinking of alcoholic beverages.

7.1 Have you ever had a drink containing alcohol?

No	0
Yes	1

IF NO PLEASE GO TO QUESTION 7.26.

7.2 How old were you when you first started drinking alcohol?

	Years

7.3 Do you still take a drink with alcohol sometimes?

No	0
Yes	1

7.4 Why did you stop drinking alcohol?

Not applicable/still drinking alcohol	9

_____

_____

_____

7.5 When did you stop drinking alcohol?

0-6 months ago	1
7-12 months ago	2
13-24 months ago	3
25-36 months ago	4
37 months or more	5
Not applicable	9

IF YOU HAVE NOT HAD AN ALCOHOLIC DRINK IN THE PAST YEAR, PLEASE GO TO QUESTION 7.26.

7.6 How often do you have a drink containing alcohol?

Monthly or less	1
2 to 4 times a month	2
2 to 3 times a week	3
4 or more times a week	4

7.7 On how many days have you drunk alcohol during the past month?

	Days

7.8 What type(s) of alcoholic beverages do you usually drink?

		Yes	No
A	Beer	1	0
B	Cider (e.g. Crossbow, Crown, Hunters, Redds, Savannah, Strongbow)	1	0
C	Bottled wine	1	0
D	Papsak wine	1	0
E	Coolers (e.g. Archers, Bacardi Breezer, Brutal Fruit, Esprit, Hooch, Red Square, Smirnoff Spin, Smirnoff Storm, Smirnoff Triple Spin, Solantis)	1	0
F	Spirits (e.g. gin, whisky, vodka, brandy)	1	0
G	Liqueurs (e.g. Amarula)	1	0
H	Home brew	1	0

7.9 Where do you buy your alcohol?

		Yes	No
A	I do not buy my alcohol	1	0
B	Liquor store	1	0
C	Supermarket/Café	1	0
D	Spaza shop	1	0
E	Night club/Disco	1	0
F	Shebeen	1	0
G	Restaurant/Pub	1	0
H	Tavern	1	0
I	Neighbour	1	0
J	Other (Please specify)	1	0

7.10 When you are not paying for your alcohol, how do you get it?

		Yes	No
A	I make it myself	1	0
B	I get it on credit	1	0
C	I work for it	1	0
D	I exchange goods (e.g. clothes) for it	1	0
E	It is bought for me/given to me	1	0
F	I take it without paying for it	1	0
G	Other (Please specify)	1	0

7.11 How many drinks containing alcohol do you have on a typical day when you are drinking? (Please note that one drink is equivalent to one can or bottle of beer, cider or coolers, one glass of wine, or one tot of spirits).

None	0
1 or 2	1
3 or 4	2
5 or 6	3
7 to 9	4
10 or more	5
Other, please specify. If you drink homebrew please indicate the name of the homebrew, type of container, and quantity consumed.	6

7.12 In which of the following type(s) of venues or events do you usually drink alcohol?

		Yes	No
A	Home	1	0
B	Park/Outdoors	1	0
C	Restaurant	1	0
D	Tavern	1	0
E	Shebeen	1	0
F	Bar	1	0
G	Car park(s)	1	0
H	Friend's home	1	0
I	Party	1	0
J	Festival/Concert	1	0
K	Other (please specify)	1	0

7.13 With whom do you usually drink alcohol? (Please circle only one)

Alone	1
With friend(s)	2
With relative(s)	3
With partner	4
With whoever is in the drinking place	5
With other (please specify)	6

Below is a list of questions about your drinking behaviour. Please choose the option that best reflects your behaviour

		Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7.14	How often do you have six or more drinks on one occasion?	0	1	2	3	4
7.15	How often during the last year have you found that you were unable to stop drinking once you had started?	0	1	2	3	4
7.16	How often during the last year have you failed to do what was normally expected from you because of drinking?	0	1	2	3	4
7.17	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	0	1	2	3	4
7.18	How often during the last year have you had a feeling of guilt or remorse after drinking?	0	1	2	3	4
7.19	How often during the last year have you been unable to remember what happened the night before because you had been drinking?	0	1	2	3	4
7.20	Have you or someone else been injured as a result of your drinking?	0	1	2	3	4
7.21	Has a relative, friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?	0	1	2	3	4

7.22 Have you ever felt you ought to cut down drinking?

No	0
Yes	1

7.23 Have people annoyed you for criticising your drinking?

No	0
Yes	1

7.24 Have you ever felt guilty about your drinking?

No	0
Yes	1

7.25 Have you ever had a drink first thing in the morning?

No	0
Yes	1

7.26 Whom among the following family members has had an alcohol problem?

		Yes	No
A	Mother	1	0
B	Father	1	0
C	Uncle	1	0
D	Aunt	1	0
E	Sister	1	0
F	Brother	1	0

7.27 Are there any warning labels about the health risks of drinking alcohol on any alcohol containers?

No	0
Yes	1
Do not know	2

7.28 Does the drinking of alcohol during pregnancy have any effect on the unborn foetus?

No	0
Yes	1
Sometimes	2
Don't know	3

7.29 In what ways can a baby be affected if a mother drinks in pregnancy?
[This question is to be coded by the interviewer, according to the instructions received.]

	Yes	No
A Social integration	1	0
B Physical growth	1	0
C Intellectual ability	1	0
D Learning problems	1	0
E Behavioural problems	1	0
F Specific facial features	1	0
G Speech problems	1	0
H Other (please specify)	1	0

Section 8: Smoking and Other Drug Use

8.1 Have you ever tried or experimented with cigarette smoking, even one or two puffs?

No	0
Yes	1

8.2 How old were you when you smoked a whole cigarette for the first time?

	Years

8.3 Have you ever smoked at least 100 cigarettes (5 packets of cigarettes) or the equivalent amount of tobacco in your lifetime?

No	0
Yes	1

8.4 During the past 30 days, on how many days did you smoke cigarettes?

	Days

8.5 During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?

I did not smoke during the past 30 days	0
Less than 1 cigarette per day	1
1 cigarette per day	2
2 to 5 cigarettes per day	3
6 to 10 cigarettes per day	4
11 to 20 cigarettes per day	5
More than 20 cigarettes per day	6

8.6 Have you ever used snuff?

No	0
Yes	1

8.7 How old were you when you first used snuff? CIRCLE 99 IF YOU HAVE NEVER USED SNUFF.

	Years
99	

8.8 During the past 30 days, on how many days did you use snuff?

	Days

8.9 Have you ever taken medicines for purposes other than their intended use (e.g. to change the way you feel, think, or behave)?

		Yes	No
A	Over-the-counter medication	1	0
B	Prescription medication	1	0

8.10 Have you ever used any of the following drugs?

		Yes	No
A	Dagga	1	0
B	Mandrax	1	0
C	Heroin	1	0
D	Crack/cocaine	1	0
E	Ecstasy	1	0
F	Methamphetamine (tik)	1	0

8.11 During the past 30 days, on how many days did you use each of the following drugs, if at all?

		0 days	1 or 2 days	3 to 5 days	6 to 9 days	10 to 19 days	20 to 29 days	All 30 days
A	Dagga	0	1	2	3	4	5	6
B	Mandrax	0	1	2	3	4	5	6
C	Heroin	0	1	2	3	4	5	6
D	Crack/cocaine	0	1	2	3	4	5	6
E	Ecstasy	0	1	2	3	4	5	6
F	Methamphetamine (tik)	0	1	2	3	4	5	6
G	Over-the-counter medication (not for its intended use)	0	1	2	3	4	5	6
H	Prescription medication (not for its intended use)	0	1	2	3	4	5	6

Section 9: Sexual Behaviour

This section deals with sexual behaviour. Please note that these questions concern any male partner, including husbands, males with whom you are cohabiting, or other partners.

9.1 When was the last time you had sex, if ever?

Never	0
Within the last week	1
Within the last month	2
More than one month ago	3

IF YOU HAVE NEVER HAD SEX, PLEASE GO TO QUESTION 10.5

9.2 Who did you last have sex with?

Husband	1
Boyfriend	2
Other regular partner	3
Casual acquaintance	4
Someone just met	5
Other (Please specify)	6

9.3 How old were you when you first had sex?

	Years
99	Not applicable

9.4 What is the total number of sexual partners you have had in the past three months?

None	0
1	1
2-3	2
4-5	3
6-7	4
8-9	5
More than 9	6
Not applicable	9

9.5 How often have you had sex under the influence of alcohol in the past three months?

Never	0
1-3 times	1
4-6 times	2
7-9 times	3
10-12 times	4
More than 12 times	5
Not applicable	9

Section 10: Use of Condoms

The questions in this section concern condom use.

10.1 How frequently have you used condoms with your spouse or regular partner(s) in the past 3 months?

Never	0
Seldom	1
Sometimes	2
Always	3
Not applicable (respondent had no spouse or regular partner in the past three months)	9

10.2 How frequently have you used condoms with casual partners in the past 3 months?

Never	0
Seldom	1
Sometimes	2
Always	3
Not applicable (respondent had no casual partner in the past three months)	9

10.3 The last time you had sex, was a condom used?

No	0
Yes	1
Don't know	2
Not applicable	9

10.4 Why did you not use a condom the last time you had sex?

		Yes	No	Not Applicable
A	I did not want to use a condom	1	0	9
B	I did not need to use a condom	1	0	9
C	I did not like condoms	1	0	9
D	I did not know about condoms	1	0	9
E	I did not have a condom	1	0	9
F	Other (Please specify)	1	0	9
G	I used a condom the last time I had sex	1	0	9

10.5 Where can you get condoms from?

		Yes	No
A	Government Hospital	1	0
B	Day Hospital/Clinic	1	0
C	Community Health Centre	1	0
D	Family Planning Clinic	1	0
E	Mobile Clinic	1	0
F	Community Health Worker	1	0
F	Private Hospital/Clinic	1	0
G	Pharmacy	1	0
H	Private Doctor	1	0
I	Supermarket	1	0
J	Filling station	1	0
K	Other (Please specify)	1	0

10.6 How easy is it for you to buy condoms in your community?

Very difficult	0
Quite difficult	1
Quite easy	2
Very easy	3

10.7 How easy is it for you to get free condoms from clinics in your community?

Very difficult	0
Quite difficult	1
Quite easy	2
Very easy	3

10.8 How important is it for you to use condoms when you have sexual intercourse with a casual partner?

Extremely important	0
Quite important	1
Quite unimportant	2
Extremely unimportant	3

10.9 How important is it for you to use condoms when you have sexual intercourse with your regular partner?

Extremely important	0
Quite important	1
Quite unimportant	2
Extremely unimportant	3

Section 11: Use of Contraceptives

11.1 How old were you when you had your first period?

Less than ten years old	1
Ten to fifteen years old	2
Sixteen to twenty years old	3
Beyond twenty years old	4

11.2 Have you ever used anything or tried in any way to delay or avoid getting pregnant?

No	0
Yes	1

11.3 Which is the main method that you are <u>using now to delay or avoid getting</u> pregnant?

Pill	1
IUD	2
Injections	3
Diaphragm/foam/jelly	4
Condom	5
Female sterilisation	6
Male sterilisation	7
Calendar/rhythm	8
Withdrawal	9
Traditional herbs/remedies	10
Abstinence	11
Other (Please specify)	12
None	99

11.4 How long have you used this method?

	Years
	Months
99	Not applicable

11.5 Which are the methods that you have <u>used in the past</u> to delay or avoid getting pregnant?

		Yes	No
A	Pill	1	0
B	IUD	1	0
C	Injections	1	0
D	Diaphragm/foam/jelly	1	0
E	Condom	1	0
F	Female sterilisation	1	0
G	Male sterilisation	1	0
H	Calendar/rhythm	1	0
I	Withdrawal	1	0
J	Traditional herbs/remedies	1	0
K	Abstinence	1	0
L	Other (Please specify) _____	1	0
M	Unsure	1	0
N	None	1	0

11.6 Where do/did you obtain the method you are using currently?

Government Hospital	1
Government Clinic	2
Community Health Centre	3
Family Planning Clinic	4
Private Hospital	5
Private Clinic	6
Private Doctor	7
Mobile clinic	8
Pharmacy/Chemist	9
Traditional healer	10
Faith healer	11
Don't know	12
Other (Please specify) _____	13
Not applicable	99

11.7 How old were you when you first used something to avoid getting pregnant?

	Years
99	Not applicable

11.8 From whom did you first get information about methods to avoid pregnancy? (Circle as many as apply)

		Yes	No
A	Mother	1	0
B	Sister	1	0
C	Father	1	0
D	Other Relative	1	0
E	Friend	1	0
F	Teacher	1	0
G	Nurse	1	0
H	Doctor	1	0
I	Social Worker	1	0
J	Poster/Leaflet/Magazine	1	0
K	Radio/Television	1	0
L	Other (Please specify)	1	0

11.9 Did your parent(s) or guardian(s) give you advice on contraceptives or explain how to use them?

No	0
Yes	1

Section 12: Social Support

People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to you if you need it?

		None of the time	A little of the time	Some of the time	Most of the time	All of the time
12.1	Someone you can count on to listen to you when you need to talk	1	2	3	4	5
12.2	Someone to give you information to help you understand a situation	1	2	3	4	5
12.3	Someone to give you good advice about a crisis	1	2	3	4	5
12.4	Someone to confide in or talk to about yourself or your problems	1	2	3	4	5
12.5	Someone whose advice you really want	1	2	3	4	5
12.6	Someone to share your most private worries and fears with	1	2	3	4	5
12.7	Someone to turn to for suggestions about how to deal with a personal problem	1	2	3	4	5
12.8	Someone who understands your problems	1	2	3	4	5
12.9	Someone who shows you love and affection	1	2	3	4	5
12.10	Someone to love and make you feel wanted	1	2	3	4	5
12.11	Someone who hugs you	1	2	3	4	5
12.12	Someone to have a good time with	1	2	3	4	5
12.13	Someone to get together with for relaxation	1	2	3	4	5
12.14	Someone to do something enjoyable with	1	2	3	4	5

Section 13: Culture

This section has questions concerning your culture. We are interested in knowing what kinds of behaviour would be considered to be in accordance with your culture and the kinds of behaviours that would be unacceptable according to your culture.

13.1 According to your culture men are entitled to have as many children as they wish to have

Strongly agree	1
Moderately agree	2
Moderately disagree	3
Strongly disagree	4

13.2 According to your culture, is it always, usually, sometimes or never wrong to not have children if you do not want to?

Always wrong	1
Usually wrong	2
Sometimes wrong	3
Never wrong	4

13.3 According to your culture, having children is a sign that you are a worthy woman.

Very true	1
Somewhat true	2
Somewhat untrue	3
Very untrue	4

13.4 According to your culture, for a man to have children is a sign that he is a worthy man.

Very true	1
Somewhat true	2
Somewhat untrue	3
Very untrue	4

Section 14: Pregnancy Experiences

Now I would like to ask you about your pregnancies and the health of your last born child.

14.1 How many children have you given birth to in your lifetime?

None	0
One	1
Two	2
Three	3
Four	4
Five	5
Six	6
Seven	7
Eight	8
Nine	9
Ten	10
More than ten	11

14.2 How many miscarriages have you had in total, if any?

None	0
1 to 2	1
3 to 4	2
5 or more	3

IF NEVER PREGNANT AND NEVER HAD MISCARRIAGES, PLEASE GO TO SECTION 17.

14.3 At the time you became pregnant with your last child, how much did you want to become pregnant then?

A great deal	1
A little	2
Not much	3
Not at all	4

14.4 How much longer would you like to have waited?

	Months
	Years
9	Not applicable

14.5 When you were pregnant, to whom did you go for antenatal care for this pregnancy? (Circle as many as apply)

		Yes	No
A	No one	1	0
B	Doctor	1	0
C	Nurse/midwife	1	0
D	Traditional birth attendant	1	0
E	Other person (Please specify)	1	0
F	Not applicable	1	0

14.6 Where did you go for antenatal care the majority of times during the last pregnancy?

Public hospital	1
Private hospital	2
Public clinic	3
Public surgery	4
Private midwife's office	5
Other (please specify)	6
Not applicable	9

14.7 How many months pregnant were you when you first received antenatal care?

Months

14.8 How many times did you go for antenatal appointments during this pregnancy?

Times

14.9 What was the outcome of the pregnancy?

Full-term	1
Pre-term (premature)	2
Still-born	3
Voluntarily terminated pregnancy	4
Miscarriage	5

14.10 Did you have any complications at birth?

No	0
Yes (please specify)	1

14.11 Where did you give birth?

Home	1
Government Hospital	2
Day hospital/clinic/community health centre	3
Private hospital/clinic	4
Other (Please specify)	5

14.12 Who assisted with the delivery? (Please circle as many as apply)

	Yes	No
A. Doctor	1	0
B. Nurse/midwife	1	0
C. Traditional birth attendant	1	0
D. Relative/friend	1	0
E. Other (please specify)	1	0

14.13 Was your child delivered by caesarean section?

No	0
Yes	1
Not applicable	9

14.14 How much did your child weigh at birth?

	Grammes
99	Do not know/do not remember

14.15. How old were you when you gave birth to your last child?

	Years
99	Do not know/do not remember

Section 15: Pregnancy and Alcohol Use

I would like you to now think about this pregnancy or the last time you became pregnant.

15.1 How many months pregnant are you right now?

Not Pregnant	0
1 month	1
2 months	2
3 months	3
4 months	4
5 months	5
6 months	6
7 months	7
8 months	8
9 months	9
Do not know	10

15.2 When last were you pregnant?

In the past year	1
More than one year but less than two years ago	2
More than two years but less than three years ago	3
More than three years but less than four years ago	4
More than four years but less than five years ago	5
More than five years ago	6

15.3 Did you plan to stop smoking because of the pregnancy?

No	0
Yes	1
Not applicable/Not smoking at time of falling pregnant	9

15.4 Did you plan to stop drinking because of the pregnancy?

No	0
Yes	1
Not applicable/Not drinking at time of falling pregnant	9

IF NOT APPLICABLE, PLEASE GO TO QUESTION 16.1

15.5 Whom among the following has advised you to stop drinking during pregnancy? (Please circle as many as apply)

		Yes	No
A	No one	1	0

B	Doctor	1	0
C	Nurse/midwife	1	0
D	Social Worker	1	0
E	Traditional birth attendant	1	0
F	Other person (please specify)	1	0

15.6 Please specify how your drinking changed when you received the advice, and the reason(s) for the change:

I stopped drinking	0	
I reduced my drinking	1	
My drinking did not change	2	
I increased my drinking	3	

15.7 Which of the following factors made it difficult for you to stop drinking during pregnancy?

		Definitely true	Mostly true	Not sure	Mostly false	Definitely false
A	Influences from my friend(s)	0	1	2	3	4
B	Influences from my partner(s)	0	1	2	3	4
C	Influences from family member(s)	0	1	2	3	4
D	Stress	0	1	2	3	4
E	I felt addicted	0	1	2	3	4
F	I enjoyed drinking too much	0	1	2	3	4

15.8 Which of the following factors made it easy for you to stop drinking during pregnancy?

		Definitely true	Mostly true	Not sure	Mostly false	Definitely false
A	My friend(s)	0	1	2	3	4
B	My partner(s)	0	1	2	3	4
C	Family members	0	1	2	3	4
D	Health and/or Social Services	0	1	2	3	4
E	Lack of stress	0	1	2	3	4
F	I did not feel addicted	0	1	2	3	4
G	I did not enjoy drinking anymore	0	1	2	3	4

15.9 During the three months before you became pregnant, how often did you have a drink containing alcohol?

Never	0
Monthly or less	1
2 to 4 times a month	2
2 to 3 times a week	3
4 or more times a week	4

15.10 During the three months before you became pregnant, on what days did you drink alcohol?

Never	0

Occasionally	1
Weekdays only	2
Weekends only	3
Weekdays and weekends	4

15.11 During the three months before you became pregnant, how many drinks containing alcohol did you have on a typical day when you were drinking?

None	0
1 or 2	1
3 or 4	2
5 or 6	3
7 to 9	4
10 or more	5
Other, please specify. If the respondent drank homebrew please ask her to indicate the name of the homebrew, type of container, and quantity consumed.	6

Now I would like you to think about the period during which you were pregnant…

15.12 After you knew you were pregnant, how often did you have a drink containing alcohol?

Never	0
Monthly or less	1
2 to 4 times a month	2
2 to 3 times a week	3
4 or more times a week	4

15.13 After you knew you were pregnant, on what days did you drink alcohol?

Never	0
Occasionally	1
Weekdays only	2
Weekends only	3
Weekdays and weekends	4

15.14 After you knew you were pregnant, how many drinks containing alcohol did you have on a typical day when you were drinking?

None	0
1 or 2	1
3 or 4	2
5 or 6	3
7 to 9	4
10 or more	5
Other, please specify. If the respondent drank homebrew please ask her to indicate the name of the homebrew, type of container, and quantity consumed.	6

15.15 After you knew you were pregnant, how easy/difficult was it to reduce/stop your drinking?

Very difficult	0
Quite difficult	1
Quite easy	2
Very easy	3
I did not try to reduce my drinking/I never drank before	9

Now I would like to ask you about your next pregnancy, if you were to become pregnant again in the future.

15.16 For you to abstain from alcohol during your next pregnancy would be:

Extremely good	1
Moderately good	2
Neither good nor bad	3
Moderately bad	4
Extremely bad	5

15.17 For you to abstain from alcohol during your next pregnancy would be:

Extremely easy	1
Moderately easy	2
Neither easy nor difficult	3
Moderately difficult	4
Extremely difficult	5

15.18 For you to abstain from alcohol during your next pregnancy would be:

Completely under your control	1
Moderately under your control	2
Neither under your control nor not under your control	3
Moderately not under your control	4
Extremely not under your control	5

15.19 Most people who are important to you think that you should abstain from alcohol during your next pregnancy:

Strongly agree	1
Moderately agree	2
Neither agree nor disagree	3
Moderately disagree	4
Strongly disagree	5

15.20 How likely is it that you will abstain from alcohol during your next pregnancy?

Extremely likely	1

Moderately likely	2
Neither likely nor unlikely	3
Moderately unlikely	4
Extremely unlikely	5

15.21 If your child has any problems, how severe are they?

	Not at all	Mildly	Moderately	Severely	Not applicable
A Social integration	0	1	2	3	9
B Physical growth	0	1	2	3	9
C Intellectual ability	0	1	2	3	9
D Learning	0	1	2	3	9
E Behavioural	0	1	2	3	9
F Specific facial	0	1	2	3	9
G Speech/language	0	1	2	3	9

15.22 Have you ever been told that a child of yours has foetal alcohol syndrome?

No	0
Yes	1
Maybe	2
Not applicable	9

Section 16: Male partners

The questions in this section are about the man who was in your life at the time of your last pregnancy.

16.1 Who was in your life?

No one	0
Father of the child	1
Someone else	2

IF NO ONE WAS IN YOUR LIFE AT THE TIME OF YOUR LAST PREGNANCY, PLEASE GO TO SECTION 18

16.2 How old was he then? _____years

16.3 What was the highest (standard/year) he completed at school?

Less than one year completed	1
Sub A/Class 1/Grade 1	2
Sub A/Class 2/Grade 2	3
Standard 1/Grade 3	4
Standard 2/Grade 4	5
Standard 3/Grade 5	6
Standard 4/Grade 6	7
Standard 5/Grade 7	8
Standard 6/Grade 8	9
Standard 7/Grade 9	10
Standard 8/Grade 10	11
Standard 9/Grade 11	12
Standard 10/Grade 12	13
Further studies – incomplete	14
Diploma/other post school – complete	15
Degree	16
Do not know	17

16.4 Did he work?

No	0
Yes	1

16.5 What was his occupation? That is, what kind of work did he mainly do?

Not working	9
Type of work	

Please indicate how strongly you agree or disagree with the following statements.

	Strongly agree	Moderately agree	Neither agree nor disagree	Moderately disagree	Strongly disagree
16.6 You were satisfied with your relationship with this person	1	2	3	4	5
16.7 Sometimes there were serious disagreements between you and him	1	2	3	4	5
16.8 Sometimes there was hitting or slapping between you and him	1	2	3	4	5
16.9 You had a lot of control in your relationship with him	1	2	3	4	5
16.10 There was a lot of trust between you and him	1	2	3	4	5

Now I would like to ask about his drinking of alcoholic beverages.

		Never	Less than monthly	Monthly	Weekly	Daily or almost daily
16.11	How often did he have a drink containing alcohol?	0	1	2	3	4
16.12	How often did you drink with him?	0	1	2	3	4
16.13	How often did he have six or more drinks on one occasion?	0	1	2	3	4

Now I would like to ask about the effect of his drinking of alcoholic beverages

		No	Yes	Don't know
16.14	Was he or someone else ever injured as a result of his drinking?	0	1	2
16.15	Did a relative, friend, or a doctor or other health worker ever express concern about his drinking or suggest that he cut down?	0	1	2

16.16 How many drinks containing alcohol did he have on a typical day when he was drinking?

None	0
1 or 2	1
3 to 4	2
5 to 6	3
7 to 9	4
10 or more	0

16.17 Did you feel obliged to drink alcohol when your partner was drinking?

Never	0
Sometimes	1
Always	2

Section 17: Your Current Partner

We would now like to ask the same questions about your current partner, whether or not he is the same man we just spoke about.

17.1 Who is your current partner?

No one	0
Father of the child	1
Someone else	2

IF NO ONE, PLEASE MOVE TO SECTION 18.

17.2 Is your current partner the person you just spoke about in Section 16?

No	0
Yes	1

17.3 How old is he now? _____ years

17.4 What was the highest (standard/year) he completed at school?

Less than one year completed	1
Sub A/Class 1/Grade 1	2
Sub A/Class 2/Grade 2	3
Standard 1/Grade 3	4
Standard 2/Grade 4	5
Standard 3/Grade 5	6
Standard 4/Grade 6	7
Standard 5/Grade 7	8
Standard 6/Grade 8	9
Standard 7/Grade 9	10
Standard 8/Grade 10	11
Standard 9/Grade 11	12
Standard 10/Grade 12	13
Further studies – incomplete	14
Diploma/other post school – complete	15
Degree	16

17.5 Does he currently work?

No	0

Yes	1

17.6 What is his occupation? That is, what kind of work does he mainly do?

Not working	9
Type of work	

Please indicate how strongly you agree or disagree with the following statements.

	Strongly agree	Moderately agree	Neither agree nor disagree	Moderately disagree	Strongly disagree
17.7 You are satisfied with your relationship with this person	1	2	3	4	5
17.8 Sometimes there are serious disagreements between you and him	1	2	3	4	5
17.9 Sometimes there is hitting or slapping between you and him	1	2	3	4	5
17.10 You have a lot of control in your relationship with him					
17.11 There is a lot of trust between you and him	1	2	3	4	5

Now I would like to ask about his drinking of alcoholic beverages.

		Never	Less than monthly	Monthly	Weekly	Daily or almost daily
17.12	How often does he have a drink containing alcohol?	0	1	2	3	4
17.13	How often do you drink with him?	0	1	2	3	4
17.14	How often does he have six or more drinks on one occasion?	0	1	2	3	4

Now I would like to ask about the effect of his drinking of alcoholic beverages

		No	Yes	Don't know
17.15	Has he or someone else ever injured as a result of his drinking?	0	1	2
17.17	Did a relative, friend, or a doctor or other health worker ever express concern about his drinking or suggest that he cut down?	0	1	2

17.17 How many drinks containing alcohol does he have on a typical day when he is drinking?

None	0
1 or 2	1
3 or 4	2
5 or 6	3
7 to 9	4
10 or more	5

17.18 Do you feel obliged to drink alcohol when your partner is drinking?

No	0
Yes	1

Section 18: Religious Orientation

These questions inquire about some aspects of your religious life. Please answer each by choosing the option which best represents your normal practice.

18.1 How religious do you consider yourself to be?

Very religious	1
Quite religious	2
Fairly religious	3
Not very religious	4
Not at all religious	5

18.2 How often do you attend religious services?

Frequently	1
Often	2
Sometimes	3
Seldom	4
Never	5

18.3 How often do you pray?

Five times a day	1
More than twice a day	2
Once a day	3
Only when necessary	4
Seldom if ever	5

18.4 How often do you read the Holy Scriptures/Quran…..?

Daily	1
Often	2
Occasionally	3
Seldom	4
Never	5

18.5 How often do you watch or listen to religious programmes on television or radio?

Always	1
Frequently	2
Sometimes	3
Rarely	4
Never	5

18.6 How important is your religious belief in your daily life?

Of utmost importance	1
Of great importance	2
Of some importance	3
Of little importance	4
Of no importance	5

Section 19:Mass Media

Finally, this last section asks about you and the mass media: radio, television, newspapers and magazines.

19.1 Which magazine do you read most often?

19.2 Which local newspaper do you read most often?

19.3 Which national newspaper do you read most often?

19.4 Which radio station do you listen to most often?

19.5 Which television channel do you watch most often?

THANK YOU VERY MUCH

WE REALLY APPRECIATE YOUR HELP

I certify that this interview has been completed in full; with the respondent and according to the instructions I received from the trainers; and that the information I received will be kept strictly confidential.

SIGNED:

_____

(INTERVIEWER'S SIGNATURE)

_____

(DATE)

_____

(EXACT TIME OF COMPLETION)

UNIVERSITY OF CAPE TOWN

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23 January 2012

HREC REF: 026/2012

Dr N Peer
Public Health & Family Medicine

Dear Dr Peer

PROJECT TITLE: COMPREHENSIVE FETAL ALCOHOL SYNDROME PREVENTION PROGRAMME IN THE WESTERN CAPE AND GAUTENG: INDIVIDUAL LEVEL INTERVENTIONS.

Thank you for your letter to the Faculty of Health Sciences Human Research Ethics Committee for review.

The HREC are happy for you to use the dataset for your MMed.

We have assigned it a new ref number and formally approved the above-mentioned study for one year till the **30th January 2013.**

Please submit a progress form, using the standardised Annual Report Form (FHS016), if the study continues beyond the approval period. Please submit a Standard Closure form (FHS010) if the study is completed within the approval period.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC. REF in all your correspondence.

Yours sincerely

Signed by candidate

PROFESSOR M BLOCKMAN
pp CHAIRPERSON, HSF HUMAN ETHICS
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council

s.thomas